

I4. 6

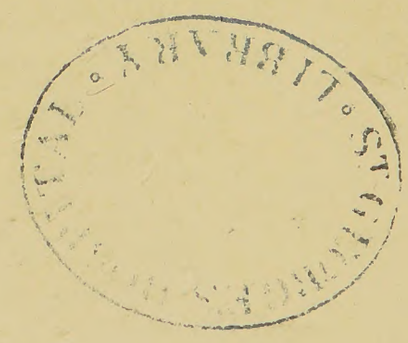


Feb 18th 1888



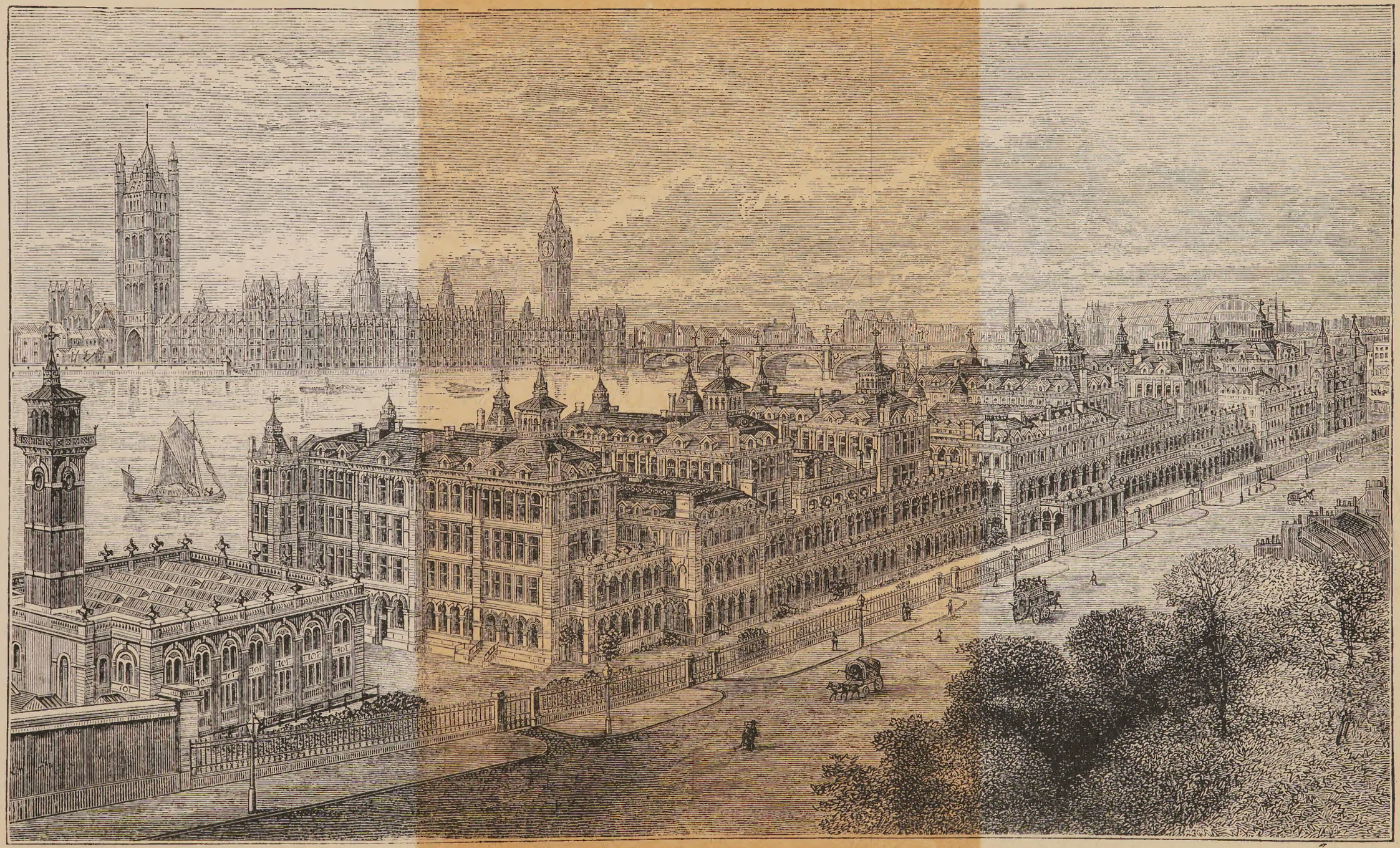






Digitized by the Internet Archive
in 2020 with funding from
Wellcome Library

https://archive.org/details/s2492id1379907



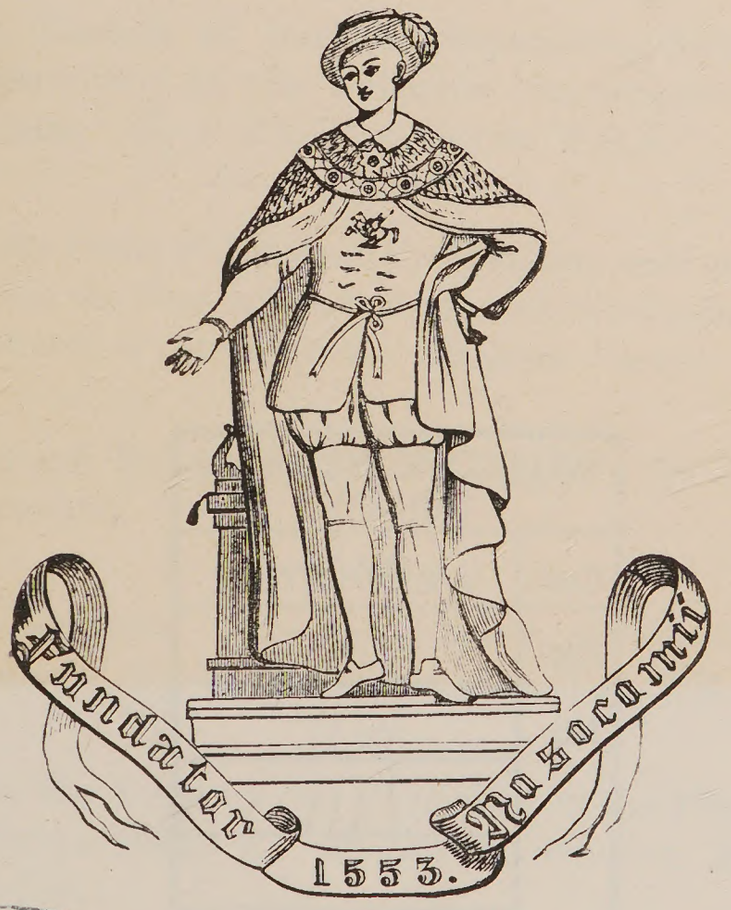
VIEW OF ST. THOMAS'S HOSPITAL FROM THE SOUTH-EAST.

SAINT THOMAS'S HOSPITAL REPORTS.

New Series.

EDITED BY

DR. GULLIVER AND MR. CLUTTON.



VOL. XVI.

LONDON:
J. & A. CHURCHILL, NEW BURLINGTON STREET.

MDCCCLXXXVII.

WELLCOME INSTITUTE LIBRARY
Coll. welMOmec
Call No. Ser WI 111

PRINTED BY ADLARD AND SON, BARTHOLOMEW CLOSE.





CONTENTS.

PAGE

I. Some Records of Surgical Experience, being a Contribution to the Collective Investigation of Disease. By F. Le Gros Clark, F.R.S. . 1

II. On Fifty Cases of Internal Urethrotomy, and on the Use of the Bougie Conductrice with the Graduated Catheter in combination. By John Croft . 31

III. Typhus and Relapsing Fevers in Egypt. By F. M. Sandwith 55

IV. An Observation upon the Physics of the Male Urethra. By W. W. Wagstaffe, B.A., F.R.C.S. 119

V. Note on the Anatomy and Physiology of the Phrenic Nerve in Man. By W. W. Wagstaffe, B.A., F.R.C.S. 127

VI. The Introductory Address of the Medical and Physical Society. By W. B. Hadden, M.D. . 129

VII. Cases of Acute Delirium or Acute Delirious Mania. By R. Percy Smith, M.D., M.R.C.P. . . 141

PAGE

VIII. The Blood in Pernicious Anæmia. By S. M. Copeman, M.A., M.B.Cantab. . . 155

IX. The Treatment of Cystic Bronchocele. By H. H. Clutton 173

X. Remarks on Obsolete Pus, on Hernia, and on Circumcision. By Charles A. Ballance . . 185

XI. The best Method for Diverting the Ureters and Removing the Bladder, as shown by Experiments on the Cadaver. By Walter Edmunds and Charles A. Ballance . . . 201

XII. Some Practical Remarks on the Joints; chiefly in reference to the Functional Relation of the Muscles to them. By F. Le Gros Clark, F.R.S. 209

XIII. Cases of Hysteria and Allied Conditions, in the Treatment of which Isolation, Electricity, and Massage were used. By Seymour J. Sharkey . 231

XIV. Remarks on the Differential Diagnosis of Intracranial Affections Secondary to Disease of Ear. By Walter Edmunds . . . 247

XV. A Notice on the more interesting of the Additions made to the Museum during the preceding Year. By Samuel G. Shattock . . . 253

XVI. Report of the Department for Diseases of the Skin, 1885 and 1886. By J. F. Payne, M.D., F.R.C.P. 259

XVII. Report of the Obstetrical Department for 1885. By Robert Cory, M.A., M.D. . . 373

PAGE

XVIII. Medical Report, 1886. By Walter Baugh Hadden, M.D. Lond., M.R.C.P. . . 281

XIX. Surgical Report, 1886. By G. H. Makins, F.R.C.S. 311

XX. Statistical Report of the Ophthalmic Department for the Year 1886. By Robert Nairn . 411

LIST OF ILLUSTRATIONS.

WOODCUTS.

PAGE

Illustrating Mr. Croft's paper on Fifty Cases of Internal Urethrotomy.

Fig. 1.—Bougie Conductrice with Screw (Teevan's Urethrotome) 37
Fig. 2.—Staff of Urethrotome (do.) . . . 37
Fig. 3.—Urethrotome, with its Guard (do.) . . 37
Fig. 4.—Fine Bougies and Graduated Catheters . . 38

Illustrating Mr. Wagstaffe's paper on the Physics of the Male Urethra 119

Illustrating Mr. Ballance's paper on Obsolete Pus, on Hernia, and on Circumcision . 192, 199

Illustrating Messrs. Edmunds and Ballance's paper on the best Method of Diverting the Ureters and Removing the Bladder.

Fig. 1.—Drawing showing position of incisions . . 203
Fig. 2.—Drawing showing deep dissection of part . . 205




LIST OF SUBSCRIBERS.

Abbott, Charles E., Braintree, Essex
Acland, T. D., M.D. Oxon., 7, Brook Street, W.
Adam, A. Mercer, M.D., The Church Close, Boston, Lincolnshire
Allingham, William, F.R.C.S., 25, Grosvenor Street, W.
Alliott, A. J., M.D. Cantab., Rosendal, St. John's, Sevenoaks.
Amyot, Thomas E., F.R.C.S., Diss, Norfolk
Anderson, Henry B., 25, Westbourne Villas, West Brighton
Anderson, William, F.R.C.S., 25, Grosvenor Road, S.W.
Armstrong, H. G., Wellington College, Wokingham

Ballance, Charles A., M.S. Lond., F.R.C.S. Eng., 56, Harley Street, Cavendish Square, W.
Bamber, H. K., 5, Westminster Chambers, S.W.
Banks, W. A., M.D., Rockland, Maine, U.S.
Barker, T. A., M.D., F.R.C.P., 109, Gloucester Place, Portman Square, W.
Barnes, Robert, M.D., F.R.C.P., 15, Harley Street, W.
Baron, Thomas, Ulceby, Lincolnshire
Battle, W. H., F.R.C.S., St. Thomas's Hospital, S.E.
Bedford, R. J., Kegworth, Leicestershire
Bennett, Sir J. Risdon, M.D., F.R.C.P., F.R.S., LL.D., 22, Cavendish Square, W.
Bernays, Albert J., M.A., Ph. D., St. Thomas's Hospital, S.E.
Bidwell, L. A., 34, Lee Terrace, Lee, S.E.
Blaker, N. P., 29, Old Steyne, Brighton
Bond, W. A., M.A., M.D. Cantab., St. Thomas's Hospital, S.E.
Bowen, Essex, M.D., F.R.C.S., 31, Grange Mount, Birkenhead
Bristowe, John Syer, M.D., F.R.C.P., F.R.S., LL.D., 13, Old Burlington Street, W.
Britton, Thomas, M.D., Victoria Avenue, Harrogate
Brown, Fred. Gordon, 17, Finsbury Circus, E.C.
Brown, L. D., Henley Villa, Ealing, W.
Browne, Edgar A., F.R.C.S. Edin., 39, Rodney Street, Liverpool
Bryan, Frederick, M.B., County Asylum, Colney Hatch, N.

Cameron, C. H. H., Lochiel, Harlesden, N.W.

Carpenter, A., M.D., Duppas House, Croydon
Carpenter, Edward, Trevathan, Albemarle Road, Beckenham, Kent
Carter, William, M.D., LL.B., F.R.C.P., 74, Rodney Street, Liverpool
Caudle, A. W. W., Henfield, Sussex
Chaffers, Edward, F.R.C.S., North Street, Keighley, Yorkshire
Chaldecott, Charles W., Dorking, Surrey
Charles, T. C., M.D., 9, Albert Mansions, Victoria Street. S.W.
Clapton, Edward, M.D., F.R.C.P., F.R.C.S., 10a, St. Thomas's Street, S.E.
Clapton, William, F.R.C.S., 27, Queen Street, Cheapside, E.C.
Clark, Fred. Le Gros, F.R.C.S., F.R.S., Sevenoaks, Kent
Clark, James Henry, Jamaica, per J. W. Goodinge, Esq., 16, Aldersgate Street, E.C.
Clarke, Arthur, Stock, near Ingatestone, Essex
Clifton, G., 48, London Road, Leicester
"Clifton Medical Reading Society," per J. Fawn and Son, Queen's Road, Bristol
Clutton, H. H., F.R.C.S., 2, Portland Place, W.
Cockell, F. E., jun., Holly Lodge, Forest Road, Queen's Road, Dalston, E.
Colby, Wm. Taylor, M.D., The Mount, Malton, Yorkshire
Copeman, S. M., M.A., M.B. Cantab., 134, York Road, Lambeth, S.E.
Corbin, M. A. Bazille, F.R.C.S., St. Peter Port, Guernsey
Cory, R., M.A., M.D., 73, Lambeth Palace Road, S.E.
Cowen, Philip, M.D., 10, Landseer Road, Upper Holloway, N.
Crick, Samuel A., M.B., M.S., St. Thomas's Hospital, S.E.
Croft, John, F.R.C.S., 48, Brook Street, Grosvenor Square, W.
Crosby, T. B., M.D., F.R.C.S., 21, Gordon Square, W.C.

Davis, G. W., St. Thomas's Hospital, S.E.
Denne, T. V. de, Cradley Heath, Brierly Hill, Staffordshire
Dixon, Edward L., M.D., M.R.C.P., 9, Winckley Square, Preston, Lancashire
Dobson, Nelson C., F.R.C.S., 27, Victoria Square, Clifton, Bristol
Dukes, Clement, M.D., B.S. Lond., Sunnyside, Rugby
Duncan, W. A., M.D., 6, Harley Street, W.
Durham, Arthur E., F.R.C.S., 82, Brook Street, Grosvenor Square, W.

Edwards, Vertue, Shottisham, Woodbridge, Suffolk
English, D.C., M.D.
Elliott, J. W., 5, Manor Road, Forest Hill, S.E.
Elwin, Charles J., 6, City Road, E.C.
Emson, Alfred, Dorchester
Eve, R. W., M.B., Tyrwhitt House, 101, Lewisham High Road, S.E.

Farrant, Samuel, North Street House, Taunton
Fell, W., M.B., Wellington, New Zealand
Fouracre, Robert P., 20, Tollington Park, N.
Franklin, G. C., F.R.C.S., 39, London Road, Leicester

Gervis, Frederick H., 1, Fellows Road, Haverstock Hill, N.W.
Gervis, Henry, M.D., F.R.C.P., 40, Harley Street, W.
Gibson, John R., F.R.C.S., 10, Russell Square, W.C.
Goddard, Eugene, M.D., North Lynn, Highbury New Park, N.
Greaves, Charles A., M.B., LL.B., 84, Friargate, Derby
Greenfield, Wm. Smith, M.D., F.R.C.P., 7, Heriot Row, Edinburgh
Groome, W. W., M.B., Stowmarket, Suffolk
Grose, S., M.D., F.R.C.S., Westbourne, Melksham, Wilts
Guest, Ellis S., 263, Oxford Street, Manchester
Gulliver, George, M.A., M.B., F.R.C.P., 16, Welbeck Street, W.
Güterbock, Dr. P., Berlin, per Julius Lesser & Co., Gartside Street, Bridge Street, Manchester

Hadden, W. B., M.D., 21, Welbeck Street, W.
Hague, Samuel, M.D., LL.B., B.A., 277, Southampton Street, Camberwell, S.E.
Hardyman, Charles E., M.D. Durh., F.R.C.S. Edin., 110, Queen Street, Cardiff
Harley, John, M.D., F.R.C.P., F.L.S., 9, Stratford Place, W.
Harris, Henry, M.D., F.R.C.S., Trengweath, Redruth
Hartley, Horace, Stone, Staffordshire
Harvey, S. F., 42, Perham Road, West Kensington, S.W.
Haslam, W. F., F.R.C.S., 33, Paradise Street, Birmingham
Hawkins, William, Abbotsbury, Dorsetshire
Hearnden, William Alex., M.D., Down House, Sutton, Surrey
Heelis, R., M.B., 318, Lenton Boulevard, Nottingham
Hitchcock, H. K., M.D., Christowell, Branksome Park, Bournemouth
Hobhouse, E., M.B., B.S.Oxon., St. Thomas's Hospital, S.E.
Holberton, H. N., East Molesey, Kingston-on-Thames
Hough, C. H., Full Street, Derby
Howard, R. P.
Howell, Thomas S., The Old Vicarage, Wandsworth, S.W.
Howse, H. G., M.S., 59, Brook Street, W.
Hullah, Robert, Lunatic Asylum, Grahamstown, Cape of Good Hope
Hutton, H. R., M.A., M.B., 8a, St. John Street, Manchester

Iles, Daniel, Fairford, Gloucestershire

Jacob, E. H., M.A., M.D. Oxon., 12, Park Street, Leeds
Jackson, James, 15, Huntingdon Street, Barnsbury, N.
Jefferson, Thomas J., M.D.
Jones, Evan, Ty-mawr, Aberdare, Glamorganshire
Jones, Sydney, M.B., F.R.C.S., 16, George Street, Hanover Square, W.
Jones, Thomas, M.D., 2, St. Stephen's Terrace, Albert Square, Clapham, S.W.

Kershaw, J. E., M.A., M.B.Oxon., St. Thomas's Hospital, S.E.
Kilner, W. J., M.B., 57, Queen Anne Street, Cavendish Square, W.

Lankester, H. H., M.D., 1, Elm Park Gardens, South Kensington, W.
Larder, H., Whitechapel Infirmary, Baker's Row, E.
Laver, A. H., 26, Cemetery Road, Sheffield
Lawford, J. B., M.D., C.M., F.R.C.S., 6, Upper Wimpole Street, W.
Leeds Medical Society, per A. F. McGill, F.R.C.S., 23, Park Square, Leeds
Lees, Joseph, M.D., 21, Brixton Road, S.W.
Liebreich, R.
Litteljohn, S. G., M.B. and C.M., Central London District School, Hanwell, W.
Lunn, J. R., F.R.C.S. Edin., Resident Medical Superintendent, St Marylebone Infirmary, W.

Mac Cormac, Sir William, F.R.C.S., M.A., M.Ch., D.Sc., 13, Harley Street, W.
Mackellar, A. O., F.R.C.S, M.Ch., 22, George Street, Hanover Square, W.
Mackenzie, H. W. G., M.A., M.B. Cantab., St. Thomas's Hospital, S.E.
Maclagan, T. J., M.D., 9, Cadogan Place, Belgrave Square, S.W.
MacLean, Allan., Harpenden Hall, St. Albans
Maconchy, John K., M.B., B.A., F.R.C.S.I., Infirmary House, Downpatrick, co. Down
Makins, G. H., F.R.C.S., 2, Queen Street, Mayfair, W.
Manchester Royal Infirmary, per W. L. Saunder, Secretary
Maples, R., Kingsclere, Newbury
March, H. Colley, M.D., 2, West Street, Rochdale
Marriner, W. H. Lister, M.B., Westbourne Tower, Bournemouth.
Marsack, Blackall., Howard Lodge, Tunbridge Wells
Maurice, O. C., 75, London Street, Reading
Maybury, A. V., M.D., Mile End, Portsmouth
McKay, W. W., M.D.
McSwain, A., M.D.
Mennell, Z., 31, Shepherd's Bush Road, W.
Miller, F. Montague, 284, Amhurst Road, E.
Millman, T., M.D., M.R.C.S.E., Asylum for Insane, Kingston, Ontario, Canada
Morris, C. K., Gordon Lodge, Charlton Road, Blackheath, S.E.
Morton, John, M.B., Eastgate House, Guildford
Murphy, G. Wyndham, M.B., M.Ch., The Lawn, Dunstable, Beds.

Nairn, R., St. Thomas's Hospital, S.E.
Neate, Chas. P. W., M.R.C.P., and F.R.C.S.E., Stilton, Peterborough
Nettleship, E., F.R.C.S., 5, Wimpole Street, W.
Newsholme, A., M.D., 39, High Street, Clapham, S.W.
Nichol, F. E., M.A., M.B.Cantab., St. Thomas's Hospital, S.E.
Norris, E. S., M.A., M.B., 117, High Street, Eton.
Nowell, Arthur H.

Odling, A. E., Wendover, Tring
Orange, W., C.B., F.R.C.P., 35, Cromwell Road, Brighton
Ord, George R., Streatham Hill, S.W.
Ord, William M., M.D., F.R.C.P., 37, Upper Brook Street, Hanover Square, W.
Osborn, S., F.R.C.S., 10, Maddox Street, W.
Owen, Charles W.

Palmer, A. M., Old Whittington, Chesterfield
Palmer, M. H. C.
Payne, J. F., M.D., F.R.C.P., 78, Wimpole Street, W.
Pern, Alfred, F.R.C.S., Botley, Southampton
Pilcher, W. J., F.R.C.S., High Street, Boston, Lincolnshire
Pitts, Bernard, M.A., M.C., 31, Harley Street, W.
Plowman, S., F.R.C.S , St. Thomas's Hospital, S.E.
Pode, E. D. Y., 133, Fentiman Road, S.W.
"Portman Medical Book Club" per G. R. Turner, F.R.C.S., 49, Green Street, Park Lane, W.
Potter, H. Percy, F.R.C.S., Kensington Infirmary, Marloes Road, W.
Powell, J. J., Blyton House, Weybridge
Purvis, John P., 38, Royal Hill, Greenwich, S.E.

Ranger, Wm. Gill, 4, Finsbury Square, E.C.
Rayner, H., M.D., Hanwell, W.
Reid, R. W., C.M., 75, Lambeth Palace Road, S.E.
Rendle, G., St. Thomas's Hospital, S.E.
Richardson, T. A., 26, London Road, Croydon, for Book Society
Richmond, Thomas G., F.R.C.S., Prestbury, Macclesfield, Cheshire
Robathan, G. B., Risca, Newport, Mon.
Rockliffe, W. C., M.A., M.D., 9, Charlotte Street, Hull
Rosser, Walter, M.D., 1, Wellesley Villas, Croydon
Rossiter, George F., M.B., Cairo Lodge, Weston-super-Mare

Sams, John Sutton, Eltham Road, Lee, S.E.
Saunders, Sir Edwin, F.R.C.S., 13a, George Street, Hanover Square, W.
Saunders, H. W., M.B., F.R.C.S., Cape Town, Cape of Good Hope
Savill, T. D., M.D., Paddington Infirmary, Harrow Road, W.
Scutt, T. Homer, York Dispensary, York.
Seaton, Edward, M.D., 35, George Street, Hanover Square, W.
Sedgwick, James, M.D., Boroughbridge, Yorkshire
Sedgwick, L. W., M.D., 2, Gloucester Terrace, Hyde Park, W.
Semon, Felix, M.D., F.R.C.P., 39, Wimpole Street, W.
Sergeant, Ed.
Sharkey, Seymour J., M.B., F.R.C.P., 2, Portland Place, W.
Shattock, S. G., F.R.C.S., St. Thomas's Hospital, S.E.
Shaw, John, M.D. Lond., Willoughby Road, Hampstead, N.W.
Sherrington, C. S , M.A., M.B.Cantab., St. Thomas's Hospital, S.E.
Simmonds, H. M., 66, Camberwell Road, S.E.

Simon, Sir John, K.C.B., F.R.C.S., D.C.L., F.R.S., 40, Kensington Square, W.
Slaughter, W. B., care of Dr. Slaughter, Farningham, Kent
Smith, Frederick W., 40, Newington Causeway, S.E.
Smith, R. Percy, M.D., Bethlem Royal Hospital, S.E.
Solly, Ernest, M.B., St. Thomas's Hospital, S.E.
"South London Medical Reading Club"
Sprakeling, Robert J., 58, Merton Road, Bootle, Liverpool
Staddon, John H., 6, Silent Street, Ipswich
Statham, Hugh W., 50, Woburn Place, W.C.
Stewart, Charles, F.L.S., Royal College of Surgeons, W.C.
Stone, W. H., M.A., M.B., F.R.C.P., 3, The Sanctuary, Westminster, S.W.
Strange, W. Heath, M.D., 2, Belsize Avenue, Hampstead, N.W.
Strassburg Imperial University Library (Alsace).
Stuart, J. B., Standishgate House, Wigan
Sturton, Hubert W. S., 63, South Street, Greenwich, S.E.
Summerhayes, Henry, B.A.
Sutton, F. W.
Sutton, S. W., M.D., per Messrs. Dickeson & Stewart, 4, Queen Victoria Street, E.C.
Suzuki, S., St. Thomas's Hospital, S.E.

Takaki, Kanehiro, F.R.C.S., Kyobashiku, Tokyo, Japan
Tatham, E., Bell Street, Henley-on-Thames
Taylor, S., M.D., 16, Seymour Street, Portman Square, W.
Thompson, F. H., Cleobury Mortimer, Salop
Totsuka, K., St. Thomas's Hospital, S.E.
Treves, W. Knight, F.R.C.S., 31, Dalby Square, Margate
Truman, C. E., M.A. Cantab., 23, Old Burlington Street, W.
Turner, Richard, 22, School Hill, Lewes, Sussex
Tyrrell, W., 95, Cromwell Road, South Kensington, S.W.

Vesey, T. A., M.B., A.B., M.Ch., Knapton, Rosstrevor, co. Down

Wadd, Frederick J., M.B., C.M., Prospect House, Richmond, Surrey.
Wagstaffe, W. W., B.A., F.R.C.S., Purleigh, St. John's Hill, Sevenoaks
Waller, Arthur, B.A., 14, Gibson Square, Islington, N.
Walters, F. R., M.D., 20, Finsbury Circus, E.C.
Ward, Fred. Henry, County Asylum, Tooting, S.W.
Webber, W. W., Crewkerne, Somerset
Wells, Sir T. Spencer, Bart., F.R.C.S., 3, Upper Grosvenor Street, W.
White, E. F., F.R.C.S., 7, Dealtry Road, Putney, S.W.
Wilkinson, T. M., F.R.C.S. Ed., 7, Lindum Road, Lincoln
Wilks, Samuel, M.D., F.R.C.P., LL.D., F.R.S., 72, Grosvenor Street, W.
Williams, Leonard, M.A., M.B., Wheatley, Oxon
Williams, W. Rhys, M.D., 95, St. George's Road, S.W.

Williams, William, Tylorstown, Pontypridd.
Wilson, W., M.D., Florence, care of Squire and Co., 5, Coleman Street, E.C.
Winstanley, Clement, Ingatestone, Essex
Wrench, Edward M., F.R.C.S., Park Lodge, Baslow, Derbyshire
Wright, F. J., M.D., Northumberland House, Finsbury Park, N.
Wyman, W. S., M.D., F.R.C.S., Westlands, Upper Richmond Road, Putney, S.W.

York Medical Society, per H. C. Shann, Esq., 71, Micklegate, York

In order to facilitate the safe transmission of the 'St. Thomas's Hospital Reports,' it is particularly requested that the attention of the Editors be directed to any inaccuracies in the above list of Subscribers.

In Exchange.

St. Bartholomew's Hospital Reports
St. George's Hospital Reports
Guy's Hospital Reports
London Hospital Reports
Westminster Hospital Reports
The Manchester Hospital Reports
The Obstetrical Society's Transactions
Proceedings of The Medical Society of London
Transactions of The Clinical Society of London
The Journal of Mental Science
Royal College of Physicians
Royal College of Surgeons
The Journal of The Pharmaceutical Society of Great Britain
Le Progrès Médical (Dr. Bourneville, 6, Rue des Ecoles, Paris)
Journal of The American Medical Association (65, Randolph Street, Chicago, Illinois)
American Journal (H. C. Lea, 706, Sansons Street, Philadelphia)
Transactions of New York Academy (D. Appleton & Co., 16, Little Britain)
Walsh's Retrospect (Publisher of), Washington, D.C., United States
Royal College of Surgeons, Dublin (The Librarian)
Parkes Museum (Hon. Sec.), 74 A, Margaret Street, W.
Tokyo Medical Library, Kyobashiku, Japan (per Messrs. Harris & Co., 5, Bishopsgate Street, Without, E.C.)
Senatus Academicus, University of Edinburgh.




SOME RECORDS OF SURGICAL EXPERIENCE,

BEING A CONTRIBUTION TO THE

COLLECTIVE INVESTIGATION OF DISEASE.

(*Continued from 'St. Thomas's Hospital Reports,' N.S., Vol. XV, p.* 31.)

By F. LE GROS CLARK, F.R.S.,
CONSULTING SURGEON TO ST. THOMAS'S HOSPITAL.

Cases illustrative of injuries of the astragalus.—Imperforate anus.—The treatment of stricture by caustic.—Strangulated hernia.—Disease of brain.—Wounds by ball and shot.

In the present paper I propose to narrate the history of a few cases which illustrate points of practical interest treated of in my former papers, or which, from their infrequency, seem to merit a record in the accessible form of "Hospital Reports." Possibly some of our readers may be induced to supply similar cases, and thus aid in realising the design of these communications, by adding to the store of materials for the collective study of disease.

Injuries involving the Astragalus are often troublesome and perplexing. In its normal position this bone is wedged in between others, and so firmly tied to them by ligaments, that it is a marvel how it can be dislodged, though the difficulty of replacing it is sufficiently obvious. Attempts to classify these injuries are neither very successful nor productive of much practical advantage. I will narrate a few cases from my hospi-

tal notes, which will serve to illustrate the variety of these lesions, the way in which they happened, and their obstinate resistance to the attempts made to restore the displaced bones to their natural position.

1. J. S—, æt. 30, was carrying a hod of mortar up a ladder, and fell, when at a height of fifteen feet, on to his right foot. There was a large, horizontal wound over the outer malleolar region, from which protruded the tibia and fibula,—both unbroken and tightly grasped by the lacerated skin—together with the greater part of the astragalus, which was retained in its relations to them by its ligamentous connexions. The head of the astragalus and a small piece of its outer malleolar articulation were left *in situ*. The body of the astragalus was separated from the bones of the leg and removed; after which the tibia and fibula were, with some difficulty, replaced in their normal position. The leg was placed resting on the back, with an inside splint. There was some reactionary hæmorrhage, which was easily controlled. Subsequently an abscess formed in the calf, and the treatment was protracted. Ultimately the patient, who was a gin and beer drinker, recovered, and left the hospital of his own accord. When last seen he was still using crutches.

2. W. G—, æt. 36, slipped from a cart-wheel on which he was standing, and his left foot was jammed between two stones, and twisted at the same time. The astragalus was dislocated, and resting, with its head facing outwards, on the cuboid. It was thus wrenched from its connexions with the tibia, fibula and os calcis. By manipulation the head of the bone was restored to its navicular cup, but no effort could replace the body of the bone. All the surrounding bones were in their normal position; and the body of the astragalus appeared to be tilted forwards and outwards, so that the fibular articulation could be distinctly felt, and the skin was stretched over the most prominent angle of the bone. The malleoli were uninjured. The limb was kept at rest on a splint. On the third day, after considerable general disturbance, with rapid pulse and irritable stomach, the simple became converted into a compound dislocation by gangrene of the skin covering the bone. The opening was extended by incision and the astragalus removed; a small portion still attached to the os calcis being left. It was found

that the bone was more twisted in its abnormal position than was supposed. Subsequently phlegmonous inflammation extended up the leg and thigh, requiring free incisions. He rallied for a time, but ultimately succumbed about three weeks after his admission into the hospital.

3. R. A—, æt. 35, a florid, healthy man, was thrown from his cab, but cannot give any account of how he fell. He had a wound over the outer malleolar region, through which it was ascertained that he had a comminuted fracture of the astragalus; but, singular to say, the fibula, as well as the other neighbouring bones, had escaped fracture. The outer fragment of the astragalus, including the greater part of the external malleolar articulation, was removed; but the remainder of the bone, though ascertained to be broken, it was thought more judicious to leave in its firmly attached relations. This proved a very tedious case, suppuration continuing from the wound for two months; after which, unfortunately, I have no notes of the case; probably because he left the hospital before he was well. But my last memorandum induces me to believe that the patient ultimately recovered a serviceable limb.

4. Mr. J. G—, a bookbinder, æt. 51, of muscular frame, was stepping from an omnibus, when his right foot slipped, his left being on the bottom step: the consequence was that the former came violently to the ground in an inverted position. He attempted to walk but soon fell, observing that he trod on the outside of the foot, though at first he felt no pain. When the boot was cut away the following appearances presented themselves. The foot was inverted, so that the sole looked inwards, the deformity in this respect resembling talipes varus: the tendo Achillis was tense; the astragalus was driven obliquely forwards, so that one third of its tibial surface was exposed; the outer malleolar articulation was entirely dislocated, but the inner retained its position. On the upper part of the tarsus the skin was stretched tightly over a hard, rounded prominence, which was the disarticulated head of the astragalus. No fracture of either tibia or fibula could be detected. Extension without chloroform proving unavailing, he was put under the influence of the anæsthetic. I then grasped the foot firmly by the tarsus and heel, in the way in which a boot-maker would draw off a tight boot; and extending and everting the ankle-

joint at the same time, the tibial dislocation was first reduced. The heel being then still drawn down with the right hand, pressure with the left on the back of the tarsus soon accomplished the further reduction of the head of the astragalus. The limb was then confined in a back-splint, with a foot-piece. There was subsequently a good deal of effusion at and above the joint, otherwise the patient made a good recovery, without the legacy of any lameness.

5. W. R. B—, æt. 28, a hotel-keeper, was driving a dog-cart to the Epsom races, when his horse took fright, and he was thrown out with violence, and dragged for some distance by the reins: his foot became entangled, as a policeman described, in the iron step of the vehicle. When seen by me he was in great pain in the right or injured foot. At first sight the deformity was not very marked; there was neither eversion nor inversion of the foot, nor elongation or shortening of the tarsus; the tendo Achillis was not tense; but the interval between the inner malleolus and tuberosity of the os calcis was occupied by a hard prominence over which the skin was stretched, and which proved to be the astragalus. There was very little surrounding effusion, therefore the outline of the bone could be easily traced. The tibial surface of the astragalus was superficial, looking inwards and a little upwards: the sharp margins of this surface and the malleolar articulations beyond could be distinctly felt. The posterior extremity of the bone was directed downwards and a little forwards; and the finger could trace the tibial surface, or trochlea of the bone, as far as the depression between it and the head. This, the neck of the astragalus, was driven behind the inner malleolus, and therefore its head or navicular portion must have been lodged behind and internal to this prominence, and beneath the base of the tibia. The dislocated bone was thus wrenched from all its connexions, rotated on its axis, and thrown inwards; so that its anterior part was directed upwards and backwards, and its upper surface faced inwards. I have been thus particular in describing the position of the dislocated bone, because I believe it is a unique example of this exact form of displacement, and because I had the opportunity of watching the case for many years after the occurrence of the accident.

The skin over the astragalus was tense; the circulation

through the posterior tibial artery was stopped, and the foot was numbed; for both vessels and nerves were stretched over the convexity of the displaced bone. After fruitless attempts at reduction under chloroform and with pulleys, the limb was placed at rest on an outside splint. It is unnecessary to follow the details of this case further than to say, that the tense skin retained its vitality, the swelling gradually subsided, the circulation and sensibility of the foot slowly returned, and the patient was ultimately enabled to walk with freedom. There was a certain amount of movement in the new joint, and the limb was, of course, shortened; yet he did not even require the assistance of a stick. The bearing of the foot was more on the outer side than natural.

The following case, involving the astragalus, derives a special interest from its exemplifying a very rare form of dislocation of the foot.

6. M. A. F—, æt. 23, was carrying a basket of clothes, when she slipped and fell, with her right foot twisted under her. She was in great pain, and the foot was inverted, presenting, at first sight, the appearance of an ordinary case of talipes varus: for it was rotated so that its dorsal surface was directed forwards, with an inclination downwards. On closer inspection the axis of the tibia and fibula were found to be natural: the tendons around the joint, especially those of the tibialis anticus and extensors of the toes, and the tendo Achillis were very tense. On directing attention to the ankle-joint it was apparent that fully half of the articular surface of the astragalus was in front and to the outer side of the articulation, as a finger could be laid in a depression behind the anterior and external angle of the quadrangular surface of the astragalus. The foot was thus thrown forwards and rotated inwards, with its plantar surface backwards, and fixed in that position; the heel was shortened. Reduction was accomplished by still further extending the foot and twisting it outwards: when brought into a straight line with the tibia the foot was restored to its normal position with a perceptible shock; and all deformity, muscular tension and pain at once ceased. There was no fracture; and, singular to say, there was no tangible or visible evidence of ruptured lateral ligaments; though it is difficult to imagine that such a displacement could exist without such lesion.

From a review of the foregoing cases it would appear that the injury is caused by the foot being twisted, whilst the astragalus is at the same time forcibly compressed between the tibia and os calcis; the shock combining with violent distortion to produce either fracture or dislocation of the astragalus. The weight of the body and length of leverage act to great advantage under these circumstances. The difficulty of determining the exact position of a dislocated astragalus is often much greater than would be supposed; and especially so when effusion has masked the actual relation of parts. In estimating the possible consequences of a compound dislocation or fracture of the astragalus we must not lose sight of the many bones involved in this injury, and of the large articular surface which is subjected to violence and exposure:—circumstances which go far to explain the severity of the consequent local and constitutional symptoms in most cases. This accident belongs to a category of injuries which are often fatal to the habitually intemperate. The same risk is, of course, incurred, where the simple dislocation or fracture becomes, by sloughing, converted into a compound one. It is remarkable how rarely the bones of the leg or their malleoli suffer in these injuries. In those cases which I have on record of dislocation of the foot backwards one or both malleoli were fractured, or the fibula gave way higher up. The retention of vitality by the astragalus, when isolated from its normal connexions, is also worthy of observation. In Case No. 4 only was there any serious opposition offered by the great extensor of the foot; and I was prepared to divide the tendo Achillis had it been necessary. There is a partial resemblance between the lesions in Cases 4 and 6, inasmuch as there was a dislocation of the foot forwards in each case; but in the former this was complicated with displacement of the astragalus.

As regards rules of practice in this class of cases it would be unsafe to speak dogmatically, or otherwise than generally. My own experience disposes me to regard much and continued violence in the effort to reduce a dislocated astragalus as fraught with considerable risk. Case No. 5 demonstrates how great is the capacity of the parts concerned to adapt themselves to their new relations, and how useful a foot may be obtained where the astragalus remains displaced. In reference to this

case, the hotel-keeper, I may remark that I had no fear for the vitality of the foot, in consequence of the arrested circulation through the posterior tibial artery : the communication between it and the anterior tibial in the foot was a security against that contingency. But I did dread ulceration of the tense skin, which would have exposed the tibial vessels and nerves, and thus have added a fresh complication to the existing mischief. The subsequent restoration of sensation and circulation is interesting. It is, I think, rarely admissible—I have not known a case—to interfere by operation where the displacement is simple, unless it be with a view to the removal of the bone, or for the division of an obstructing tendon. In compound dislocation or fracture the surgeon must be guided by the condition of the bone as to isolation or comminution, and as to its reducibility : but in general it will be found that the removal of the bone simplifies the case, offers the prospect of a better recovery, and eventually secures a more serviceable foot. In simple irreducible dislocation it is judicious not to meddle, but to trust to nature.[1]

Imperforate anus is not a very rare congenital defect; and the form in which it presents itself is usually simple and easily remedied. In some instances, however, such is not the case, and considerable responsibility is thrown on the surgeon in dealing with them. I will narrate a few typical cases, one of which I referred to in a previous paper, and which derives its special interest from the length of time it has been under my notice.

1. I was requested to see the infant son of a lady who had been confined on the previous day, as it had just been discovered that there was no outlet from the rectum. The child was evidently beginning to suffer from the obstruction. There was a small depression where the anus should be, but no aperture. On pressing the abdomen, or when the child cried, a soft fluctuating bulging could be distinctly felt at this spot. I passed a small scalpel rather more than half an inch through the depres-

[1] Since writing the above my attention has been directed to Sir W. Mac Cormac's paper on "Sub-astragaloid Dislocation" in the third volume of the new series of the 'Reports,' to which, therefore, the present communication may be regarded as supplementary.

sion, when meconium began to exude; and I then dilated the opening sufficiently to introduce a sponge tent, after the bowels were relieved. This was withdrawn, periodically, for three days, after which a bougie was introduced daily till the wound was healed. The child made a satisfactory recovery.

The foregoing case illustrates the simplest form of this congenital defect: the following case exemplifies a more rare and troublesome form to deal with.

2. M. C—, æt. five months, was a hospital patient. The imperforate anus was accompanied by a fistulous communication between the rectum and vagina, by which of course the fæces were passed. The course adopted in this case was to establish an anus in the first instance; and this was readily accomplished by passing a probe from the vagina through the fistulous aperture to the spot where the outlet should be, and then cutting down upon it. The new opening was kept patent by the use of bougies until it was healed. The further treatment by closing the fistula was deferred for a time, and I have no memorandum of its completion. Possibly it may have contracted so as to occasion little inconvenience; and thus the parents may have been induced to withhold the child.

3. A female infant, about four days old, was brought to the hospital in a dying state, with a distended belly. The anus was imperforate, and ineffectual attempts had been made to open a communication with the bowel. By penetrating deeply with a scalpel, directing its point towards the left iliac fossa, I succeeded in reaching the rectum, and meconium flowed abundantly: but it was too late; the child died within twenty-four hours. The post-mortem examination was made by Dr. Hicks, who supplied me with his notes. The various organs were healthy. The large intestine was much distended with gas and some feculent matter. The rectum terminated in a *cul-de-sac* just behind the os uteri. In this there was an incised opening about an inch in length, which communicated, through a passage in the cellular tissue behind the vagina, with the anus, which last appeared to be normally developed, and to have extended upwards for more than an inch. The uterus, vagina and bladder presented a normal development. There

was no trace of peritonitis. The cause of death was functional disturbance and exhaustion. That an earlier effectual operation would, in all probability, have saved life is demonstrated by the following case, to which I referred briefly in a short notice on this subject in an earlier communication.

4. W. W— is a private patient, on whom I operated thirty-six years since, and who is now the father of a family. He was a well-developed child, and born forty-four hours before I saw him. A small *cul-de-sac* existed, in the position of the anus, a full half inch in depth, and sufficiently capacious to admit the point of the little finger. The child was beginning to suffer considerably, and rejected everything taken into the stomach. Not the slightest impulse was communicated to the finger when the child cried or the abdomen was pressed. Having explained to the parents the attendant risks and probability of failure, I proceeded to operate. I passed my finger into the *cul-de-sac*, and along it a straight, narrow and pointed bistoury, which I directed upwards and backwards for more than an inch. Some venous blood but no meconium followed. I then passed a director, and felt a slight impulse against it when the child cried. Thus encouraged I passed the bistoury along the director for another half or three quarters of an inch, guiding it toward the left iliac fossa, and anticipating, possibly, a gush of arterial blood; but on withdrawing both knife and director there was an abundant discharge from the bowel and very little blood. The child speedily rallied, and went on well for a week, the bowels acting freely. At the end of this time I was informed that the artificial opening did not yield to dilatation and was nearly closed: consequently I was requested to see the child again. The obstruction was at the deepest point, where the artificial canal communicated with the intestine, the circumference of the aperture being firm and callous. I divided this obstructing ring backwards and on either side, and afterwards introduced and expanded a pair of dressing forceps, so as to dilate the opening and relieve the bowels. In the course of a month considerable progress had been made, but there was constant tendency to contraction and obstinate constipation, unless the dilatation was employed most diligently.

It is unnecessary to register the further details of this case, the treatment of which extended over many years. It was not

until a later period, when manual assistance was frequently required, that I ascertained, with tolerable certainty, the exact condition of the rectum. Originally it appeared to have terminated in a sacculated extremity, which had, no doubt, become expanded by frequent distension. Even with the watchful care of a mother crises could not be warded off; and my assistance was repeatedly required to unload the *cul-de-sac*, distended with hardened masses of fæces, an operation which exacted both patience and care. I found that the handle of an ordinary dessert- or table-spoon was the best instrument to employ in breaking up these fæcal concretions; and I accomplished it gradually by alternating this mechanical assistance with the free use of water by injection. Aperients and enemata in the intervals between these periods simply deferred the evil day; and I apprehend the explanation to be, that the sacculated bowel had little power of diminishing its own calibre, and thus contracting on its contents. The entrance into this sac was so high up in the artificial passage, as to preclude the exploration of its interior with the finger. The most troublesome time, because the most neglected, was the interval between childhood and manhood. Even now carelessness or neglect entails similar suffering: and it was only last year that, circumstances rendering neglect in the habitual use of enemata and aperients, and in regularity of habits almost compulsory, my patient had a serious illness due to this life-long trouble. This patient is now thirty-seven years old; and, with the above exception, enjoys good general health.

These cases speak for themselves. Where the rectum cannot be reached, there is, of course, the alternative of opening the colon; a resource so repulsive in an infant as to justify the risk of a deep plunge with the knife, before despairing to establish a communication with the bowel in its normal position. The external sphincter seems to be perfectly developed in these cases.

Stricture.—In an earlier contribution to the 'Reports,' I have advocated the treatment of *stricture* by the use of potassa fusa, on the value of which experience has taught me to rely. I venture now to exemplify this subject by transcribing from my hospital note-books two cases which occurred within a few weeks of

each other; because they serve to illustrate the class to which this treatment is appropriate.

1. H. M—, æt. 40, was a coachman and a spirit-drinker. He had gonorrhœa fourteen years before, but had suffered from stricture for only four years, during which time he had retention of urine on two or three occasions. After several futile attempts to pass an instrument, a No. 1 straight catheter was introduced, the urethra bleeding freely. Subsequent trials were unsuccessful, though always accompanied by hæmorrhage. It was evident, both from the history of a permanently diminished stream and difficulty in expelling the urine, and the existing obstruction, that there was an unyielding permanent stricture, of the irritable kind; *i. e.* accompanied by a tendency to spasm and bleeding. After a fortnight's rest and general treatment, potassa fusa was applied to the stricture. Directions were then given to pass, from time to time, a No. 8 sound down to the stricture, and to keep it pressed against the obstruction, without any effort to pass it. At the expiration of another fortnight the caustic was again applied; and on the following day a No. 8 metallic instrument was passed into the bladder. Three or four days later a No. 10 was passed without difficulty; and micturition was free and painless. Before leaving the hospital he was taught to pass an instrument for himself. When seen three or four months afterwards a full-sized instrument could be passed, and the patient continued quite well.

2. W. P—, æt. 36, a blacksmith, had suffered from long-continued gonorrhœa and gleet, which was arrested, about three months previous to his admission into the hospital, by the use of injections: stricture succeeded; probably the consequence of the protracted disease, though I am not disposed always to absolve the remedy in these cases. The seat of the obstruction was about two inches anterior to the bulb; and the urethra was congested and irritable, bleeding freely when any attempts were made to introduce an instrument. Micturition was difficult and the stream was small. When the patient had been an inmate for ten days potassa fusa was applied to the stricture. This occasioned pain and some bleeding. The operation was repeated at intervals on three or four occasions, after which a No. 8 catheter was passed into the bladder.

The urethra continued to bleed, for a short time on each introtion of the instrument; but ultimately a full-sized catheter was passed without pain or hæmorrhage, and the patient left the hospital quite well.

In recommending this treatment I wish it to be understood that I do not undervalue, by comparison, other immediate methods of relieving stricture. Indeed I have no right to do so, as I acknowledge that I have no experience in either splitting or cutting a stricture. These methods did not commend themselves to me, because I was satisfied with the use of the caustic where I could not deal with a case by the slower plan of gradual dilatation; and because laceration or section, besides the attendant risks of these operations, seemed to involve the probability of cicatricial re-contraction of the canal. Whether these apprehensions are well-founded I do not know from personal observation. Patient perseverance will generally do much in most cases, without operation. In organic stricture—for of such only am I speaking—the obstruction is, in almost every instance, due to a thickening, originally inflammatory, of the submucous areolar tissue. The primary object, therefore, is to get rid of this adventitious deposit; and pressure helps very materially in slowly accomplishing this desideratum. A short and nearly straight sound, passed down to, and firmly pressed against, a resisting stricture for some minutes daily, will aid in procuring absorption as exemplified in the first case. I have often employed this supplementary help in the slow treatment of impermeable stricture where there was no particular urgency.

The character of stricture to which this treatment is best adapted is that in which there is rigid resistance, with a sensitive, irritable condition of the urethra, the relief of the latter condition accompanying or even preceding that of the former. The cure in these cases I have found to be complete and permanent; and I have never, in my own practice, experienced any serious consequences from the use of the caustic. Of course, this mode of treating stricture may, like other operations, have mischievous results. Appropriate cases should be selected, and the patient's health should be attended to; and careful supervision must be exercised during the treatment. Micturition should precede the operation, and the patient should be kept

quiet afterwards. As regards the ultimate result I venture to affirm that, for permanency of cure, the caustic potash treatment will bear comparison with any other form of immediate treatment. If a full-sized instrument be passed from time to time, there is as much security against recurrence of the disease as can be reasonably expected under any circumstances.

The instrument I used was constructed for the purpose, and is described in my short comment on stricture in an earlier paper. I may here repeat that it is a No. 8 sound, of which half an inch at the extremity unscrews. This fragment is perforated, and the caustic is placed, with a little lard, on the end of the long male screw which fits into it. The sound is then passed quickly down to the stricture and kept pressed against it; and as the caustic deliquesces it exudes through the central aperture, and is thus applied directly to the seat of obstruction, where it should be kept for a minute or two. It is of course requisite to secure a free passage for a large instrument down to the seat of stricture, before employing the caustic in the way described.

Mr. Wagstaffe, lately our assistant surgeon, informs me that he adopted this plan of treatment, in consequence of witnessing the success in my cases; and that he can speak in similar terms of high commendation of it, from the results in all the cases in which he so operated. He recommends the initiatory injection of sweet oil into the urethra, to guard its surface from injury.

Hernia.—1. The following case has nothing remarkable in it beyond its typical representative character, which I think makes it worth recording. Three years since I was asked by Dr. Alliott to see with him a patient in the Sevenoaks Cottage Hospital. This patient, a young man of twenty, had a painful swelling on one side of the scrotum, about the size of a small pullet's egg. This swelling extended up the course of the cord to the abdominal ring, and was tense; and its whole surface was inflamed and very tender. He said that the swelling began a day or two previously at the lower part of the scrotum, after riding on a bicycle; and that he had suffered in a similar way on a former occasion, the attack subsiding spontaneously. He had no pain in the abdomen or across the umbilical region.

The confined bowels were not relieved by a dose of castor-oil, and he vomited after taking food, and had attacks of hiccup. The pulse was about 100 ; tongue furred but moist.

I recommended that an injection should be given ; and, if relief of the symptoms were not obtained, that an exploratory operation for hernia should be performed. I will give the remainder of the case in Dr. Alliott's words. "After the enema, which brought away a hard, lumpy stool, the symptoms—sickness and hiccup—abated ; and I began to think the patient's condition would improve permanently without operation. On the following day, however, sickness and hiccup returned accompanied with pain, and I decided to operate. After making an incision in the upper part of the swelling and dissecting down through the tissues, some fluid was evacuated, with the result that the swelling of the scrotum subsided, and the testis could be plainly felt. I found the cord greatly thickened and tightly nipped at the external ring, but no intestine could be detected. After enlarging the original incision and slitting up part of the tissues over the cord, I was enabled to pass my finger along the inguinal canal and through the internal ring, the surface being smooth and apparently the interior of a hernial sac. When my colleague also made this examination, on withdrawing his finger a piece of intestine followed it, of a claret colour, evidently a part which had been strangulated in the canal. This was carefully returned and the wound was closed." After the operation the symptoms subsided, and the patient made a good recovery.

The practical interest of this case consists in its exemplifying a class which is not very uncommon in hernia, viz. such as present symptoms of a character to suggest a doubt as to the necessity or propriety of operating. But beyond this, in the present instance, the special question presented itself as to whether we had to deal with a hernia at all, or had only a case of acute orchitis to treat. As favouring orchitis the following circumstances may be mentioned. The patient asserted that the swelling began at the lower part of the scrotum ; it was very tender and of a bright crimson colour. There was no pain in the abdomen or across the umbilicus, and the local tenderness and inflamed surface were such as would appertain to an inflamed testicle. The bowels, moreover, acted in response to

the enema. On the other hand, there were circumstances suggestive of hernia. The swelling and tension extended as high as the cord could be traced, and had not the circumscribed hardness usual in inflamed testicle. The bowels were confined and no action followed the administration of the oil. Food was vomited, and hiccup recurred at intervals. The patient's statement that the swelling was induced by riding on a bicycle, and that he had previously suffered from a similar attack which subsided spontaneously, might account either for the presence of a rupture or of an inflamed testicle, though these symptoms seemed rather to favour the supposition that there was orchitis. The pulse, temperature and tongue might have belonged to either.

The practical deductions are these: 1. Not to place too much reliance on a patient's statement, or on any one particular sign or symptom; for, if the swelling began at the lower part of the scrotum, this was not consistent with the history of a hernial protrusion. 2. Not to be influenced by the action of an injection, which may empty the lower bowel, whilst the small intestine is strangulated. I regarded the non-action of the castor-oil as far more significant. 3. Not to trust too much to the character of the pain or the appearance of the surface of a tumour, which, in this case, certainly resembled those of orchitis rather than of hernia. Lastly, in all doubtful cases of this nature to operate. Such an exploratory examination, if not needed, could do the patient but little, if any, harm; but if required and not undertaken, the neglect would probably sacrifice his life.

The explanation of the case I believe to be this. The inguinal canal and rings were sufficiently capacious just to allow of the descent of a hernia; on a previous occasion such descent had caused him suffering for a time, and the intestine had then returned spontaneously. Further, that the rupture was congenital, the tunica vaginalis being the sac, the fluid within which was retained there, in consequence of the communication with the abdominal cavity being obstructed by the strangulated intestine. The strangulation was not so firm as to require the use of the knife; indeed the history of the operation seems to point to the supposition that the intestine was partly or wholly withdrawn, when the tension was taken off

the sac by the evacuation of the fluid it contained; but its condition proved there had been strangulation, and that the operation was thereby fully justified. I may remark that, in my experience, congenital herniæ, when strangulated, generally demand the earliest possible relief: the symptoms are urgent, unless, as was probably the case in this instance, the canal has been dilated by the occasional descent and return of a rupture.

2. The following is also a typical case, though presenting itself in rather a rare form. J. B—, æt. 63, a blacksmith, was admitted with symptoms of acute strangulation of bowel. On the previous day he had been suddenly attacked by a "twisting" pain in the centre of the abdomen, and soon afterwards vomited, when he took some brandy and water. The hernia was femoral, and the symptoms were so urgent, that I at once operated. My dresser remarks, in the notes with which he supplied me, that the operation was protracted for the following reason. The sac, which was opened (as was my custom), was found to contain only omentum, the condition of which was such as to satisfy me that the explanation of the urgent symptoms must be sought for further. Therefore I proceeded in carefully examining by dissection the neighbouring parts; there was no intestine concealed by the omentum, but I found a distinct sac, of much greater thickness than that which contained the omentum, and which on being opened was found to be empty. The crural ring had been previously divided and the omentum returned. The symptoms were relieved by the operation, and the patient made a good recovery.

I say this case is typical, because it belongs to an insidious class which, in my observation, is not infrequent, viz.: an intestinal protrusion superadded to a pre-existing one of omentum. Symptoms of acute strangulation, when omentum is found in the sac, and especially in cases of pre-existing rupture, are suggestive of this form of hernia. A careful scrutiny of the contents of the sac is therefore demanded. But in this instance there was the further and rare complication of a double hernial sac. The condition of the patient, antecedent to the attack which brought him to the hospital, can be only matter of conjecture. I have no memorandum of a previous rupture, but the small and hidden sac was, from its density, probably

an old descent, which was a source of no inconvenience until the omentum descended, pushing before it a separate covering of peritoneum, and thus blocking the common aperture. Division of the stricture had, no doubt, relieved the strangulated intestine and allowed of its spontaneous return. It is to be remembered that we were dealing with a femoral hernia, and that each rupture was small.

3. Though small intestine and omentum are the usual contents of hernial sacs, occasionally other organs occupy this abnormal position. I have met with one case of this unusual character. C. B—, æt. 76, had been the subject of a double rupture for twenty years, both being inguinal. He was admitted with strangulation on the right side. The tumour was tense and tender, but there was no sickness. On opening the sac I found its contents were the cæcum, with its vermiform appendix, which were partially adherent, so as to render their separation and return unadvisable. He was relieved by the operation; the bowels acted, and there was neither abdominal pain nor sickness after the strangulation was relieved. But he never rallied, and died on the ninth day, with a brown tongue and low muttering delirium. At the post-mortem it was found that the neighbouring tissues were infiltrated with pus; and that the mucous membrane of the large intestine as high as the transverse colon was dark and congested; the middle of the ileum presented a large ulcer, partly cicatrised.

From what I have said it will be gathered that the absence of hernial contents within a sac, even where the evidence of strangulation is very decided, is not an extremely rare occurrence. It has happened to myself and I have seen it happen to others. But, although this condition may be explained in the way I have described, or be due to the taxis without perceptible decrease in the size of the tumour, it behoves the surgeon to be mindful of the possible alternative of internal strangulation in explanation of the symptoms.

Although I cannot recall any instance in which I was so unfortunate as to wound the intestine with the knife, I have seen and had under my care several cases of artificial anus, associated with hernia. This occurred in an old lady of ninety-one, on whom I operated, and who, notwithstanding this drawback, survived for three weeks, and manifested considerable

power of local repair. In two similar cases I employed pressure, with a light truss, on the oblique passage or channel of communication with the bowel; and in both it was effectual. One of these cases was a neglected femoral rupture in a female: it became strangulated and had been left to nature. The bowel sloughed, and an abscess had opened up a communication with the interior of the intestine. This inference I drew from the intelligent history given to me by the patient. The abscess was open when I first visited her, and the contents of the bowel were readily identified in the form of fruit seed, &c. Nature is rarely so kind as in this instance. One case I was requested to see, in consultation, very many years since, in which a ventral hernia had been opened, by mistaking it for an abscess. It is a happy circumstance that injured intestine is so disposed to rest. Probably the lesion paralyses the muscular activity. However that may be we nearly always find a portion of strangulated bowel close to the aperture through which it was restored to the abdomen; and speedy advantage is taken of this period of repose, where an artificial opening exists, to glue it to the neighbouring parietes, so as to prevent extravasation of the intestinal contents. This is a lesson of non-interference by purgatives at an early period after operation. Probably more fatal cases occur from this abuse of medicine before surgical interference, than from any one other cause: incontrollable diarrhœa after operation may destroy the patient's chance of recovery.

One embarrassing case is worth mentioning from its unusual nature. A young man was the subject of a diffused swelling over the lower part of the abdomen, which, from its form, position, and other local signs, suggested the existence of a parietal abscess; but the history and general symptoms left no doubt in my mind that there was a strangulated hernia. Being consulted, I advised immediate operation, which was performed with the result of exposing a portion of protruded bowel spread out beneath the aponeurosis of the external oblique muscle. It was a large inguinal hernia, the sudden descent of which appeared to explain this peculiarity. In a similar case which came under my notice a diffuse parietal abscess really existed; but it proved to be in communication with the bowel.

The variety in the details of hernia operations is inter-

minable. I have rarely operated without learning something: but this is a form of personal experience which it is impossible to impart, save by laying down some general rules, and narrating some of the deviations from the ordinary types that are met with in everyday practice. To secure success I should give special prominence to two rules: operate early, and give the intestine rest to recover its tone. In my experience, delay, rough handling and purgatives are the chief causes of fatality in hernia operations.

The following isolated cases are, I think, sufficiently interesting to merit a record in our 'Reports.'

In 1884, Mr. Don, of Sevenoaks, asked me to see J. V—, a railway servant, who was under his care. He was a young man of thirty, of reserved and placid temperament, average intelligence and sober habits. He had been married seven months, and his wife was pregnant. His general health had been good till he began to suffer, within a few weeks, from hemicranial pain, affecting the right side, which had latterly become severe. This I learned afterwards; the immediate cause of my seeing him being recurring attacks of priapism, which lasted for several hours. The first time this occurred was at the beginning of March: a fortnight later he had a similar attack; and on the 20th, after severe hemicranial suffering, he had a third attack, which lasted, with scarcely any even partial intermission, until I saw him on April 1st.

The corpora cavernosa only were affected; the bulb, corpus spongiosum and glans being undistended. He complained of pain in the perineum and lower part of the back; and movement of or pressure on the tense penis increased his suffering. Aperients, and camphor with henbane had been given without relief. I ordered leeches to the perineum and a cold hip-bath, which afforded some ease to the pain in the back, perineum and penis, but the priapism continued without abatement. On April 6th an elastic catheter was passed, as he complained of difficulty in micturition; it was on this day I first heard of the paroxysms of headache.

On April 9th the local condition was unchanged, the priapism continuing without intermission. His general condition was then alarming, and left no doubt as to the source of the

local distress. He was delirious and deaf: his pupils were somewhat dilated and acted sluggishly but uniformly. He complained of headache, and was at times violent and intractable, though his countenance was placid. He had a fair pulse of 96; his skin was moist; tongue a little brown in the centre; temperature 99°.

On April 11th he was constantly delirious and sleepless, his condition resembling very much that of drunken delirium; his temperature, pulse, &c., remaining unchanged. One sixth of a grain of morphia was injected subcutaneously, which procured several hours' sleep at intervals. On the 12th he had two epileptic fits; one of short duration, the other lasting a quarter of an hour. He was still constantly talking incoherently, and the priapism continued, with little variation and no intermission. During the following night he slept, the morphia injection being continued; and on the 13th he was fairly rational, wandering only at times; the epileptic fit was repeated, but of short duration: he was entirely deaf. The general condition continued unaltered in other respects. On the 16th he was sensible and free from pain. He had two or three epileptic fits each day. The subcutaneous injection of morphia was continued daily. The report on the 19th is that he was quite rational, and his general condition was improved. The priapism continued, and he complained of much pain on the right side of the penis, and also of pain in the legs.

After this report the patient improved gradually. His pulse fell, and the fits were rare, feeble and transient,—little more than a passing sensation. He could just hear a very loud noise, but complained of being unable to distinguish colours. He was wasted and weak, and slept badly. No pain in the head. The priapism gradually subsided, leaving merely a congested state of the penis. He micturated freely; indeed, he had done so without assistance since the catheter was once passed. The morphia was discontinued. His pulse, tongue and appetite were good; and his temperature had never risen above the normal standard. There was no priapism after the 20th, but he then still continued deaf to any conversation, however loud. His pupils were sluggish, and his incapacity to distinguish colours continued. He said the green fields looked brown;

and any attempt to read distressed him, as the letters "seemed to get out of place."

I did not see this patient again for a month; until May 20th. He was then able to get about, but his hearing was very little improved, and his sight continued very defective; he could not see anything clearly. He was free from delusions, and had no more fits, but was often giddy and deficient in co-ordinating power, occasionally falling. On examining his abdomen a considerable swelling was found to occupy the left hypochondrium, which was diagnosed as a large spleen. Subsequently to this date I did not see the patient; but I am informed that there was nothing particular to remark concerning him, except that he had occasional fits of excitement; that he gradually wasted in body and became feebler in mind; and had an attack of acute iritis a few days before his death, which occurred on October 9th, about six months after the first attack. He died comatose. When Mr. Don informed me of his patient's death he sent me an account of the autopsy, which I give in his words. "The spleen was about four times the normal size, and much harder than natural. The liver was also considerably enlarged. There was much congestion at the base of the brain, and more fluid than usual in the ventricles; but I found nothing else, though I searched carefully for any morbid appearance."

I regret that this case is incomplete, in consequence of the necessary absence of that minute examination of the brain, which might have yielded to the histologist some further information regarding the actual seat of morbid change. The case is, however, interesting from the rarity of the prolonged and uninterrupted priapism, which was considerably in excess of anything I have ever seen; lasting without intermission, for an entire month. There can be no doubt that this condition had a cerebro-spinal origin; and the exclusion of the spongy portion of the penis seems to indicate that the muscles commanding the corpora cavernosa were alone affected by the spasm to which I am disposed to attribute their distention. The only alternative explanation is that of supposing the vaso-motor nerves at fault, which does not seem to me probable. The hemicranial pain, the delirium, deafness and defective vision, with the epilepsy and imperfect co-ordinating power, all point

to the cerebro-spinal centre as the seat of disease; whilst the partial recovery and subsequent history of the patient are suggestive of some acute cerebral affection, subsiding into a chronic form, and involving progressive pathological degeneration which proved fatal. I do not venture to speculate upon what may have been the association, if any, between the nervous affection and the hypertrophy of the spleen and liver.

In 1885 I attended the following case in company with Dr. Alliott of Sevenoaks.

Mr. W. W—, æt. 36, of spare frame, healthy and temperate, was shot from behind with a revolver by a man who was walking with him. The conical bullet penetrated the left scapula below its spine, passing directly through the chest, and making its exit at the second intercostal space about three quarters of an inch from the left edge of the sternum; it also pierced his under-clothing, and lodged inside his waistcoat. He said he felt a smart blow but no pain. Knowing he was shot he ran to his home, which was about 200 yards distant. When I saw him with Dr. Alliott, shortly after the injury, he was in a state of collapse, with feeble and rapid pulse. There was some blood on his linen, both in front and behind; and small fragments of bone, apparently of the scapula, were removed from the anterior wound. The external hæmorrhage, which was slight, had ceased. A light dressing was applied to the wound, and perfect rest was enjoined. This was on May 1st.

On the following day there was some reaction and bloody expectoration, but the pulse continued small, feeble and quick; otherwise he seemed to be going on well. On the third morning he was suddenly seized with deadly faintness, from which he was restored by stimulants: and this recurred on the morning of the fourth day, and he slowly rallied under the same treatment, though his life seemed, as Dr. Alliott remarked, to hang by a thread. Champagne, and ether with brandy were the stimulants employed. The upper part of the left side of the chest was abnormally resonant; the lower part was dull on percussion. Bronchial breathing alone could be heard. Limited hæmoptysis continued for a week or ten days, after which the sputa became clear; and he had no pain and but little cough afterwards. He slept at intervals, and sometimes

for several hours. It was evident, in short, that the wounded lung was making satisfactory progress.

On May 12th, the twelfth day, the breathing became quicker and more laboured, and the chest on the left side was dull throughout; the heart being pushed over to the right side. Pulse 104 and feeble. The temperature had varied but little from the normal standard.

On the 14th Dr. Bristowe visited him; and acquiesced in the propriety of paracentesis: I therefore tapped the chest rather low down, between the seventh and eighth ribs, using the aspirator. About eight or ten ounces of fluid blood, of dark colour, were withdrawn; and as much oozed away afterwards in the dressing. More blood would have flowed at the time of the operation, but Dr. Bristowe thought it more judicious to withdraw it gradually.

On the 16th he was decidedly relieved in his breathing and had slept better. The heart still pulsated on the right side. Pulse 96 and weak. Respiration about 20 in the minute. The left side of the chest measured half an inch larger than the right.

On the 19th he was tapped again at the same spot, and about ten ounces of similar fluid were drawn off, with relief to his breathing. He subsequently passed a good night. The heart was more central, and the left side of the chest had diminished in circumference; but the resonance and lung sounds were unaltered.

On the 23rd he was tapped again a little higher up, with a syphon apparatus and a long tube depending in a basin of water. The object of this arrangement in preference to the aspirator was, that the fluid blood might drain away gradually as the chest contracted. Although great precaution was taken it was afterwards discovered that there was a slight imperfection in one of the junctions of the instrument, which permitted air to enter the pleura. About six ounces of fluid blood were withdrawn; but the instrument was not retained for the reason assigned. He passed two good nights; and, after eating imprudently, he was sick, vomiting some bile. On the 26th his temperature rose to 102°. On the 28th he was stronger and more cheerful, and took light food; the temperature was rather lower. He complained of no uneasiness, but his pulse was 120,

and his respiration 22 in the minute. His motions were devoid of bile and clay-coloured. The physical signs in the chest were unaltered.

On the 30th his condition continued much the same; the front of the left chest was tympanitic; feeble respiration was audible over the lower and back part. The impulse of the heart was felt to the right of the median line: the measurement of the two sides of the chest corresponded. During the next two days the condition of the chest remained the same; but he was feebler, and his pulse was rapid and irregular; the respiration being from 25 to 30 in a minute; and there were occasional sweats, but there was no rigor. He was, in fact, manifesting signs of blood-poisoning.

On June 1st I drew off, with the aspirator, eight ounces of stinking fluid like coffee-grounds mixed with blood, and much fœtid gas: more would not flow. Some Condy's fluid, diluted, was injected. On the following day fourteen ounces more of similar fluid were drawn off by the aspirator, but his symptoms continued unabated.

On June 3rd his condition seemed very critical; and a deep blush of inflammation had spread over the left side, from the scapula to the loins; puffy and œdematous. We felt that some more decisive step must be taken in order to save life; and I passed in a full-sized trocar and cannula, and drew off, with the aid of Dieulafois' admirable pump, fifty-two ounces of fœtid fluid, similar to the last, and washed out the chest with a solution of Condy. In the evening thirty-two ounces more were withdrawn through the same cannula, and the pleura was washed out with carbolic acid solution, one part in two hundred, about six ounces being left in.

On the following day, June 4th, his general condition was improved. Temperature 98°, pulse 108. Thirty-two ounces more of similar fluid were drawn off during the day, less foul and paler in character, though still containing a large proportion of blood. He had occasional perspirations, but no rigor.

It is unnecessary to pursue the daily details of this case further. The patient continued in a critical condition for some time, having an alarming fainting fit, varying temperature, hurried pulse and respiration, and a general condition which

continually excited anxiety. A long india-rubber tube was retained in the pleura, carefully protected by its open end being kept constantly in a vessel of antiseptic fluid by the bedside. The pleura was washed out two or three times daily during the month of June, the fœtor of the contained fluid and gas continuing. Usually two or three ounces of the antiseptic fluid were left in the chest. The heart was gradually coming over to its normal position. About the middle of the month a large mass of slough separated from the wound, where the cannula was inserted; and the rib was found to be denuded of periosteum. At this time some of the pleural fluid was examined by Professor Stewart, who reported that it contained a large number of micrococci singly and in chains, some bacteria, and cells, probably white blood-corpuscles. The discharge from the pleura was at this time quite purulent, amounting probably to three or four ounces daily. The wound being disposed to close, was occasionally dilated with a sponge-tent or enlarged with a bistoury. The depth of the opening was about one inch before entering the chest. An attempt to leave off the tube at the beginning of July was succeeded by an accumulation of pus and by general disturbance. On July 22nd a free external opening was made, and the exposed rib was felt. His temperature frequently rose to 100° or 101°, without any assignable cause. At the beginning of August he went to Hastings; but it was not until the end of the month that the tube was finally removed, after which the wound gradually closed, without any perceptible exfoliation of rib.

On November 1st our patient reported himself as feeling well. He looked so, and had regained his former weight. He said he could walk uphill without difficulty in his breathing; that he felt equal to any ordinary exertion, but that any extra demand on his endurance tried him a little.

This satisfactory termination of an anxious case was, no doubt, due in great measure to the youth and health of the patient, and the pure air in which he lived. Good nursing also helped importantly. As regards the nature of the injury I think there cannot be much difference of opinion. That the lung was pierced there can be no doubt; and almost as little, I apprehend, that a parietal artery of considerable size, most probably the internal mammary, was wounded: hence the early

collapse, and, after reaction, the subsequent fits of syncope which almost proved fatal. The physical signs in the chest confirmed this view which we took of the case from the beginning; and the subsequent tapping placed it beyond question. Fortunately there was no searching for bullet or fragments of bone and clothing, which were expelled at the time the injury was received. If there had been no hæmorrhage into the pleura, probably convalescence would have speedily ensued; for the hæmoptysis and local pneumonia quickly subsided; and if air had escaped into the pleura it would have been absorbed. The intrapleural hæmorrhage constituted the gravity of the case; and this was enhanced by the decomposition of the blood.

It may be a question whether the gas within the pleura was the cause or consequence of decomposition; or, again, whether air was not, from the beginning, mixed with the blood, by escaping, as it must have done, from the lacerated lung; and this tendency to decomposition was perpetuated long after it was impossible for air to be admitted. But the coincidence, as regards time, of the symptoms of toxæmia with the ascertained leak in the syphon seems to offer a more probable explanation; especially as the blood first drawn off by the aspirator—at an early period it is true—was not fœtid. The rapidly developed and spreading blush of inflammation and œdema over the back was an interesting index of the state of things within. I regarded it as a clear and urgent solicitation for relief, and the initiatory step towards spontaneously obtaining it. I accepted the suggestion and acted on it promptly to the immediate relief of the urgent symptoms, and the withdrawal of the inflammatory warning. Intervals were allowed, in the drainage of the fluid, to allow the lung to expand and the chest to resume its normal contractility; until the urgency of the symptoms demanded free and speedy evacuation of the pleura. Though a portion of one rib was exposed for a considerable time, there was no perceptible exfoliation from it. I may remark that I kept a record of the quantity of fluid drawn off, and find that, after deducting the quantity injected on each occasion, it amounted to 176 ounces, in the aggregate.

P.S.—Since writing the above I have examined this patient's chest. The two sides are uniform, and the resonance through-

out is natural. Vesicular respiration is equally clear on both sides in front; but on the wounded side it is less distinct behind than on the sound side; for which difference a thickened pleura may probably account. The two sides rise and fall uniformly on deep inspiration. The only inconvenience he occasionally experiences is at the spot where the drainage-tube was so long kept in; but this, he says, is unimportant. He is not otherwise conscious of any deterioration in physical strength or endurance.

A remarkable instance of recovery after severe joint injury was recently under my notice. It probably has its parallel in the annals of military surgery; but it has not fallen to my lot to witness such complete destruction of a large joint by violence, without loss of a limb or a fatal result.

G. J—, æt. 36, of usually sober habits and good health, had unfortunately exceeded the bounds of moderation with some boon companions, when a gun, charged with shot, exploded close to him, and the entire charge entered the fore part of his right thigh, a little below Poupart's ligament and to the outer side of the femoral artery. He was admitted into the Sevenoaks Cottage Hospital, under the care of Mr. Worship, who requested me to see the patient with him. We found a large aperture in front, where the charge entered, and a large fluctuating swelling occupying the corresponding glutæal region. The man was suffering from the shock and loss of blood.

After consultation it was decided to make a free incision into the tumid buttock, by which a large accumulation of blood, in clots and fluid, as well as of shot, clothing, and many big fragments of bone were removed. An opportunity was thus afforded for free drainage, and the completely shattered condition of the joint was placed beyond question. There was no reactionary or secondary hæmorrhage of any importance.

For a long period this case was in a critical condition, demanding constant and careful supervision and nursing. Inflammation, of a phlegmonous character, extended down the thigh and leg; and abscess after abscess was laid open by Mr. Worship. Upwards of 200 shot were removed at different times, together with fragments of bone and pieces of clothing.

From an inspection of all these fragments, which have been carefully preserved, it is evident that the force of the explosion had been expended on the joint, which was completely shattered. Large pieces of the head of the femur, as well as of its neck and of the acetabulum can be readily identified. The charge must have passed at no great distance from the femoral vessels, and must have been within a little of entering the pelvis through the thin floor of the acetabulum. The bleeding was most likely derived from the glutæal and ischiatic arteries.

The patient's condition at the present time, after the lapse of a year and a half, is the following. The injured limb is about six inches shorter than the sound one. The nates have the appearance presented by a dorsal dislocation of the hip. The limb is occasionally œdematous and disfigured by purpurous blotches. A few shot have recently been discharged from a small sinus behind. There appears to be some movement between the upper extremity of the femur and the ilium: but it is limited; and it is difficult to judge of, on account of the movement of the pelvis. The patient's health is good; and he is able to walk fairly well, with the help of a stick and a high boot. I should add that Mr. Worship informs me there was a persistent tendency to eversion of the limb, which, by the diligent use of sand-bags and splints, he successfully combated, to the great present gain of the patient in walking.

Of many cases of gunshot wounds which I have had to treat, I recall one which is almost as remarkable as the foregoing in the escape of the patient. Many years since a young man was admitted into the old hospital, on Good Friday. He was out on a shooting excursion, and in climbing a bank or crossing a hedge, he drew his gun after him, with the muzzle towards his body. It exploded, and the entire charge was lodged in his epigastrium. His condition seemed hopeless; but, by careful examination, I could not detect any communication with the interior of the abdomen, though I concluded some such must exist, and that probably some viscus had been wounded. I afterwards ascertained that all the parietal tissues, except the peritoneum had been torn through; and the charge, together with a quantity of clothing, was lodged in actual contact with the exterior of this membrane. The case was tedious, in con-

sequence of the long-continued suppuration; but the patient ultimately recovered. The deficiency in the epigastric wall necessitated the wearing of a broad, flat shield, truss-like, to afford the necessary support. After an interval of, probably, twelve or fifteen years, this man addressed me at a railway station, reminding me who he was. In reply to my inquiry he told me he felt no inconvenience from his accident, and had thrown aside his truss. Time had, in this respect, accomplished more than I anticipated, though probably less than justified the neglect of this precaution.

To be continued.





ON FIFTY CASES

OF

INTERNAL URETHROTOMY,

AND ON THE

USE OF THE BOUGIE CONDUCTRICE WITH THE GRADUATED CATHETER IN COMBINATION.

By JOHN CROFT.

The object of this short paper is partly to attempt to still further disabuse the minds of those who suppose that internal urethrotomy is a dangerous operation, partly to point out that it is not absolutely necessary to cut through the stricture to its utmost limits, and partly to recommend or advocate the use of the bougie conductrice and catheter in the form and mode described at the end of the paper.

All surgeons who have had more than small experience of the treatment of organic strictures of the urethra, are well aware that no single mode of treatment is applicable to all kinds and degrees of stricture.

Temporary and continuous dilatation have their merits, and in certain cases it is wiser to resort to one or the other in preference to any operation involving a fresh lesion.

I do not mean to say that the fifty cases of stricture on which these remarks are based could not have been treated in any other way. I would even admit that they might have been successfully treated by continuous catheterism, nevertheless I hope to point out that the method adopted presents very decided advantages. I do not describe any of these instances of stricture as impermeable at the period at which the operation was performed. Impermeability is not alleged as an indication for the operation. One of the cases was the subject of extravasation of urine at the time of admission. This and many other patients who presented "impermeable" strictures on admission were treated as their condition dictated, until the canal had been sufficiently cleared to allow of the passage of the bougie and staff of the internal urethrotome.

In twenty-four of the fifty, only the bougie conductrice and staff could be passed at time of operation. I do not mean to say positively that no one could have passed any catheter. The staff of the urethrotome corresponds to No. 1 English and No. 7 French gauge. What is meant is that the stricture was of very small calibre in those cases. In twelve the stricture allowed No. 2 English bougie to pass. In the remaining thirteen larger-sized instruments could be passed. All were instances of old organic strictures. Nine of them also suffered from perineal urinary fistula. Seventeen were found to have from two to four strictures.

It should be apparent that the patients submitted to this operation were not cases easily amenable to treatment by bougies. Every instance required careful and skilful instrumental treatment.

The first thing that strikes one is that there is not one fatal case. Three patients were known to have albuminuria and casts in their urine, but they escaped any disaster.

As a rule I have looked upon renal disease as a contra-indication or bar to the operation. When exceptions have been made, the cutting has been performed to a limited degree and with careful use of antiseptics. Next, it may be said that there was no case of urethral fever worthy of the name. Rigors occurred in as many as twenty cases after operation, but these rigors were not followed by any continuous febrility. Fourteen were known to have been free from any rigors or febrility. In sixteen the notes do not record whether there were rigors or not; I think it may be inferred that rigors were not more frequent and certainly that they were not more dangerous than rigors after other modes of treatment of severe cases of organic stricture.

In one case abscess formed but healed without trouble.

In two instances epididymitis ensued.

There was not any trouble from hæmorrhage in any case.

Relapse took place in four patients to our knowledge, and they were operated upon a second time. These secondary operations are included in the list of fifty.

On the subject of the duration of the good effects of the operation more will be said farther on.

Reverting to the subject of the class of case operated on, it

may be added that the shortest previous history of stricture was in one case where the symptoms had lasted eight months. Fifteen had lasted from one to five years, fourteen had lasted from five to ten years, eighteen had lasted from ten years and upwards. And in two cases the duration is not recorded.

The majority of the patients were between thirty and fifty, as many as twenty-nine being between these ages; there were nine between twenty and thirty, and nine between fifty and sixty-five years of age.

In nine of these patients their strictures were complicated with urinary fistula, two with abscesses peri-urethral and, as already stated, three were known to have casts and albuminuria.

I should now repeat that the calibre of the stricture was ascertained to be less than No. 1 English scale in twenty-four cases; to be from No. 1 English to No. 2 English in twelve cases, and to be larger than No. 2 English in thirteen cases.

A brief summary of the number and situation of the strictures will all but bring the statistical account to an end.

Seventeen presented from two to four strictures, and thirty-three were believed to have only one stricture.

Twenty-eight strictures were found in the bulbous and membranous parts of the urethra, seven patients had stricture in penile urethra, and eleven of the multiple cases were penile as well as membranous.

Now, with regard to the choice of instruments, Durham's apparatus was used in one case, Otis' in five cases, Maisonneuve's in ten, and Teevan's in the other cases.

I have no hesitation in saying that of all the various urethrotomes which I have seen and tried, I prefer this of Teevan's, and of which he gave a description in the 'British Medical Journal,' vol. i, 1878, p. 361 (see p. 37). It is advisable to have a straight as well as a curved form ready at hand. As a rule the curved instrument can be passed, but in a few instances the straight one is required.

Extent of incision.—Notwithstanding all that has been said of the necessity for cutting deeply or completely through the stricture in its thickness, I have not carried out this theory in every case, and the results of the operations as I have per-

formed them are, I believe, as good as those of other surgeons. In all cases the guard, which is also a dilator, was made to pass easily to and fro through the strictured part. This was insisted on. Mr. Teevan laid down that the blades of the urethrotome should be projected half an inch, as this was absolutely necesssry to completely divide the stricture. In my operations I was careful to firmly wedge the guard, with its blade caché, into the stricture, then to project the blade about one eighth of an inch, less or fully.

In this way it is next to impossible to cut too far in any direction. The bleeding was never severe and rarely required cold to check it. Whatever the theory may be as to the dividing every fibre of the stricture, the practice of operators has been to stretch and divide resisting tissue. The operators cannot see what they have done. They cease to use the cutting blade when its guard can pass easily backwards and forwards through the strictured part. At least I take it that none but the foolhardy carry their cutting farther than that point; to do more is to invite disaster.

Speculators on the histology of the stricture seem to imagine that *all the fibres* of a stricture must be *circular*. Have they any foundation in fact for this ?

The incision was always made on the upper part or roof of the canal.

Duration of treatment.—On this point I do not offer any statistics, because, in the treatment of strictures, it is rarely possible to accurately measure the length of time between the operation and the moment of cure. The common experience is that the patient takes himself out of the reach of the surgeon as soon as in his own estimation he feels himself able to leave the hospital. However, one can say very positively that the duration of time that the patient is under the hands of the surgeon, dresser, and nurse is very considerably shortened. The quantity of attention from these attendants which the patient occupies is very considerably abridged. The surgeon bestows five to ten minutes twice a week, or the dresser acts for him during a fortnight or three weeks.

The daily trouble attending to the maintenance of a catheter in the bladder is avoided.

After the first week, in many cases, the patient need not

keep his bed. The quantity of nursing required is very much reduced as the patients for the most part are able to assist themselves. When a catheter is kept in the bladder for several days consecutively, the patient requires not a little attention from the nurse, night and day.

Under the head of duration may be stated that, in the sense of frequency or continuity of attendance and nursing, treatment by internal division of stricture shows decided advantages over the treatment by permanent catheterism. My practice has been to pass a No. 8 or 10 catheter immediately after the operation, and to pass graduated catheters or bougies every fourth day until the patient could be consigned to the dresser, or into his own management; and this usually occupied a fortnight or three weeks, unless the patient were uncommonly ignorant or weakly.

Some may think or say that economy of skilled time is not worthy of consideration and should not enter into the calculations of the surgeon. That is not worth reasoning.

Results.—A good result was more quickly reached and with less quantity of instrumental treatment than after continuous dilatation, but I am not in a position to show positively that this result was more permanent. It has been no more possible for me than for other surgeons to trace the patients. On leaving the hospital most of them never returned to me for treatment. In four cases relapse was known to have occurred.

I believe that none of the English surgeons who have practised this operation feel equal to contending that it establishes a permanent absolute cure. Indeed, if anyone alleged this of the operation as it is described in our surgical works, I could not believe him; but that by its means a good result is more quickly obtained and with less expenditure of instrumental treatment I have no doubt.

Mode of use.—I have already stated that in performing the operation the wedge-shaped guard is well pressed down into the stricture, then the blade is protruded about one eighth of an inch, next the guard is again pressed down into the stricture, then the blade is again brought into use, and thus dilatation and cutting are alternately brought to bear on the stricture, until the resistance has been quite overcome. So it may be

said that the operation consists of a combination of dilatation and cutting.

The first step in the operation is to pass the bougie conductrice, the second to screw on the staff. In doing this the operator should be most careful to reassure himself that the mounts are firmly on, and that the screws are in good working order. The third step is to pass the staff, and upon this to slide down the blade and its guard until the latter is firmly wedged into the stricture. The fourth step is to dilate and divide the stricture.

This having been done the urethrotome and staff are to be withdrawn until the bougie conductrice appears at the meatus. The two portions of the apparatus are now to be unscrewed and the bougie conductrice left in the urethra. An elastic catheter, No. 10, English is to be screwed on to the bougie conductrice and so conducted into the bladder. When the urine has been drawn off the operation has been completed. The bougie conductrice is very useful at this stage of the proceedings, it enables the operator to avoid the risk of entangling the point of a catheter in the wounded part of the urethra. Harm might be done by lacerating the wound with a catheter. On the other hand, the use of the bougie conductrice renders the catheterism more certain and harmless.

After this the urethra is not disturbed for three or four days. At each of the subsequent sittings, which should be three or four days apart, the bougie conductrice is passed and then the graduated catheter. The catheter is left in for about ten minutes, often for less.

The results of this temporary catheterism have been so satisfactory that I have never adopted the practice of leaving the catheter in for several hours after the operation. I see the advantages that belong to continuous drainage of the bladder combined with catheterism in suitable cases, but I have not found the necessity for it after internal urethrotomy. Nothing is gained by too frequently repeated catheterism or bougieism.

It is well known that if the instruments are passed too frequently the urethra becomes excessively sensitive and the muscular element too ready to contract.

After the urethrotomy I make a practice of emptying the

bladder. When that has been done the catheter is withdrawn and the urethra left at rest, so far as instruments are concerned, for three days.

As regards the employment of sedative suppositories to prevent pain and irritation, and with reference to the exhibition of quinine to prevent or check rigors, I have nothing special to add.

In conclusion, the advantages which may be claimed for this mode of performing internal urethrotomy are :

1. That at one sitting the calibre of the strictured urethra is raised from No. 1 or less than No. 1 English, to No. 8 or 10 or more, the sitting lasting about ten minutes.

2. The number of attempts to pass instruments is greatly reduced, that is, the number and the duration of the sittings are much reduced.

3. By the aid of the conducting bougie the passage of a dilating bougie or catheter is rendered sure and easy. This applies to the use of a catheter immediately after an operation, and at subsequent sittings.

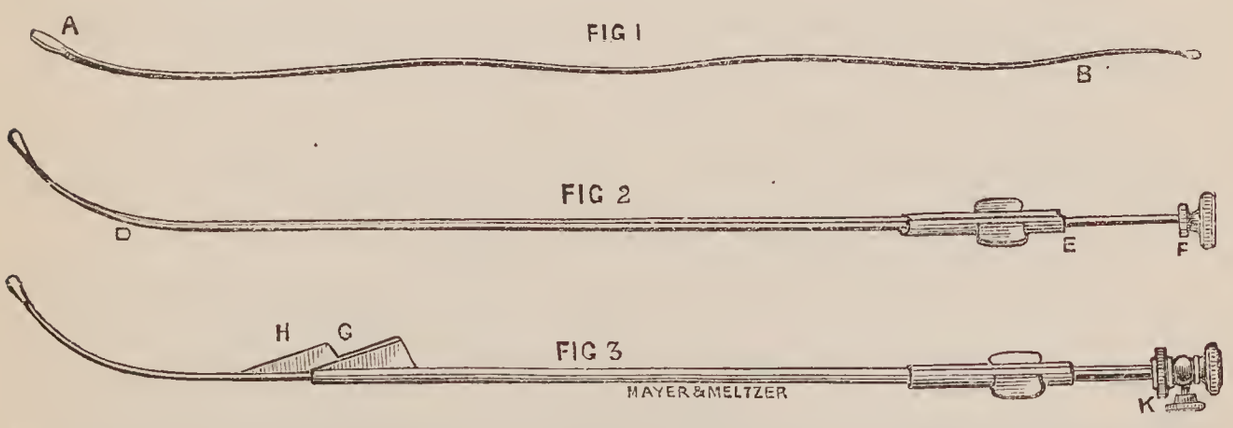
4. An insignificant quantity of blood is lost by the careful use of the blade :

5. Dilatation is combined with the cutting or scarification.

6. It avoids leaving a catheter in the bladder and the risks and inconveniences of this, namely, cystitis, urethritis, keeping his bed for several days or weeks, the daily attendance by nurses and dressers.

7. It sets the patient free to leave his bed after the second sitting.

8. It has nearly all the merits of free urethrotomy without the risks.



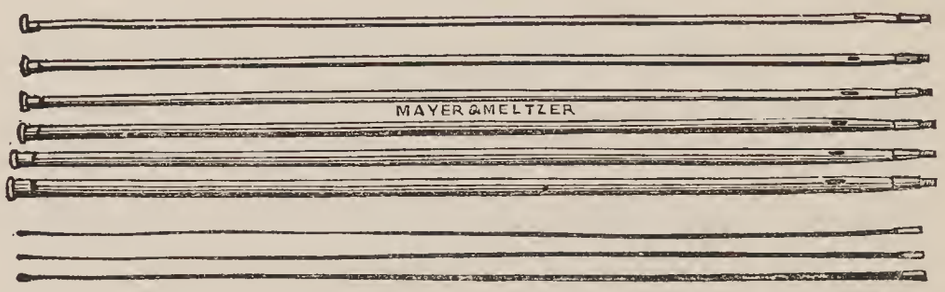
Teevan's Urethrotome.—Fig. 1. Bougie conductrice with screw. Fig. 2. Staff of urethrotome. Fig. 3. Urethrotome, with its guard.

On the bougie conductrice and graduated catheter in combination.

Fine bougies (so called filiform) have long been used as pilots, gauges of strictures, and conductors, but not until lately employed in a systematic manner, graduated, and in combination.

All that is claimed here is the systematic extension of a long recognised principle.

Fig. 4.



These combined fine bougies and graduate catheters are useful in several conditions of stricture.

1. In tight strictures which only allow No. ½ bougie to pass. The No. 1 graduated catheter can be screwed on and dilatation commenced and continued, the same bougie conductrice being used for several catheters.

2. When it is desirable to prepare the urethra for internal urethrotomy or scarification.

3. The use of this apparatus avoids the employment of fine catheters or steel instruments, and the risks attending these rigid instruments.

4. Their use avoids the formation of false passages.

5. They can be passed when no other instruments can be passed.

6. By their means gradual dilatation can be safely and easily performed in cases in which large rigid instruments are for various reasons inadmissible.

7. After internal urethrotomy or scarification, these flexible bougies are more safely and easily passed than larger or more rigid catheters or sounds; though it happens occasionally that the fine flexible bougie cannot be passed whilst the blunt-ended metal catheter can be passed easily.

9. In the hands of timid surgeons these are comparatively safe instruments.

10. They are less alarming to patients than metallic instruments.

11. The bougie may be left in the urethra should it be found impracticable to pass the catheter. In twenty-four hours, probably, the combination catheter may be passed.

12. This combination is rarely needed for simple annular strictures of a calibre over No. 5 English.

13. For strictures of any calibre complicated with folds or bridles of membrane, tortuosity, or other irregularity, or false passages, this apparatus is very valuable.

14. The joints are carefully made that they may not bend or kink.

15. The set of catheters should be graduated from No. 1 to No. 10 English.

16. Several bougies should be ready, fine, less fine, all flexible, one or more bent or spiral at the vesical extremity.

17. The combination can be safely employed when cutting operation or forcible dilatation is inadmissible.

18. The combination may be left in bladder and urethra twenty minutes.

19. It is sufficient to repeat the sitting every third or fourth day.

20. I believe this combination was first described and figured by Dr. Charles Phillips, under the title of "Sonde à vis portant un conducteur," in his work 'Traité des maladies des voies urinaires,' 1860. It is referred to by Mr. Teevan in the 'British Medical Journal,' February 7th, 1874, p. 171.





No.	Reference.	Date.	Name.	Age.	Occupation.	Stricture.			Retention.			
						Situation & number.	Calibre.	Duration & cause.	Cause.	Degree.	Duration.	Complications.
1	N. B. III. 160	15/9/71 14/10/71	J. S.	23	Seaman	Single, in front of bulb	Just admitted guide	Gonorrhœa, 2 years	...	...	...	Urinary fistula
2	213	27/1/74 20/2/74	H. P.	31	Costermonger	Membranous portion	Catgut guide	Gon., 2 years	...	...	...	...
3	231	27/10/74 26/12/74	J. G.	45	Blacksmith	Single, Bulbo membranous	Small catgut guide	Gon., 18 yrs.	...	...	...	...
4	237	27/9/75 24/11/75	C. A.	45	Clerk	Ditto	...	Gon., 10—12 years	...	...	...	Slight cystitis
5	256	27/3/76 7/4/76	W. R.	38	Shopkeeper	1st, 1½ in. from meatus; 2nd, 5 in	No. 7 Eng.	Gon., 2 years	...	...	...	...
6	IIIB. 31	24/6/78 23/7/78	E. R.	27	Ship's steward	4½ in. from orifice	No. 2	Gon., 6—7 years	...	...	...	...
7	32	3/12/77 8/3/78	W. H.	46	1, Military; 2, Bath-chairman	1st, 2½ from meatus; 2nd, 5½	No. ½ bougie	Gon., 14 yrs.	...	Several temporary attacks	...	...
8	48	18/4/79 9/5/79	T. L.	27	Labourer	3 in. from orifice	No. 1 only dribbles	Gon., 2½ yrs.	...	...	...	...
9	49	22/1/79 13/2/79	J. W.	50	Blacksmith and engine-driver	(2) 1st 1¼, 2nd 6½ fr. meat.	No. 3	28 yrs. before, Gon.	Stricture	Incomplete	9 days	...
10	50	17/11/79 10/12/79	W. V.	61	?	?	...	Gon., 12 yrs.	...	Temporary 3 times	...	...
11	51	9/1/79 10/2/79	E. T.	43	School Board Officer, ex soldier	(3) 1st, meatus; 2nd, 3½ in. from m.; 3rd, 4½ in. from m.	No. 7½ Eng.; No. 4, Charriere	Gon., 9 years	Stricture	Incomplete	6 hrs.	Rigors

neral on- ion.	Treatment. Duration.	Treatment. Instrumental.	Progress.	Result. Immediate.	Result. Remote.	Duration of residence.	Remarks.
..	...	Internal urethrotomy, followed by No. 6 up to 14	Good	No. 6 passed	Cured, No. 14	29 days	Was seen by Mr. Croft 3 years later; one of the fistulæ had partly reopened; No. 10 could be passed with slight pressure.
..	...	Maisonneuve's urethrotome twice, 4 days' interval	Had a rigor 2 days after 2nd operation	1, No. 8; 2, No. 14	C., No. 14	24 days	Nov., 1874.—No. 12 catheter passed regularly by patient himself easily. Remained cured 1886.
..	...	Maisonneuve, followed by forcible dilation 1 mo. later, and catheterism	Gradual	...	C., No. 13	60 days	Stricture dense and slow to yield.
..	...	Internal urethrotomy (Otis') 13 days after admission, followed by dilatation (Richardson)	Rapid after dilation, 1 rigor	...	...	58 days	Could pass No. 10 E. for self easily.
..	...	Internal urethrotomy (Otis'), both strictures, 2 days after admission	No rigor	...	C.	11 days	Cure permanent.
..	...	Durham's urethrotome from before backward; Otis' instrument used for second oper.	No rigor	1, No.5 silver; 2, No.8 silver	C.	29 days	No. 12 Eng. passed easily.
..	...	Small blade from before; 30 days later large blade	No rigor	1, No. 6; 2, No.8	C.	95 days	Left under treatment.
..	...	Maisonneuve's instrument	Rigors	No. 9	C.	21 days	Operation followed by two rigors; No. 11 passed.
..	22 days	Catheters, and on the 19th day internal urethrotomy, floor	Good, no rigors	No. 13	C.	22 days	No rigors; No. 13 passed; no dresser's notes.
..	...	14th day by Teevan's instrument	Good	No. 10	C.	23 days	...
Alb. and ous, pale and pressed	23 days	Internal urethrotomy 20th day; Teevan's	Fair	No. 8	No. 13	32 days	...

No.	Reference.	Date.	Name.	Age.	Occupation.	Stricture.			Retention.			
						Situation & number.	Calibre.	Duration & Cause.	Cause.	Degree.	Duration.	Complications.
12	53	2/1/79 2/4/79	J. K.	49	Messenger	4 strictures	No. 1	? Gon., 4 years	...	...	...	Perinæal abscess and fistula
13	54	24/3/79 26/7/79	W. L.	48	...	3 in. from meatus	No. 3	? denies gon., 3 years	...	...	...	Urinary fistula cystits
14	60	19/9/79 20/12/79	F. W.	25	...	...	No. 2	Gon., 3 years	...	...	...	Urinary fistula, perineal alb.
15	65	1/3/80 19/3/80	G. F.	36	...	2 in. from orifice	Catgut guide	Gon., 18 mos.	...	2 attacks in 1 yr.	...	...
16	66	11/5/80 2/6/80	A. W.	47	Mason	4 in. from meatus	No. ½	Gon., 2 years	...	...	...	Anal fistula; alb. and pus in urine
17	67	14/6/80 27/7/80	G. R.	26	Cigar merchant	When in hosp. 18 mos. ago 4; between meatus and bulb	No. 6	Gon., 6 years	...	...	...	Urinary fistula
18	70	27/9/80 21/10/80	J. C.	31	Draper	3½ in. from orifice	No. 2	Gon., 12 years	...	...	...	...
19	R. N.	9/1/87 11/2/87	W. S.	49	Labourer	2 strictures 1·5 in., 2 about 6 in.	Filiform bougie	Gon., 20 yrs.	...	2 attacks, 1 complete	...	...

eral n- ion.	Treatment.		Progress.	Result.		Duration of residence.	Remarks.
	Duration.	Instrumental.		Immediate.	Remote.		
..	...	Internal urethrotomy	Rigor	No. 9	No. 11	90 days	Fistula treated by continuous catheterism
..	...	Internal urethrotomy 6 days after admission, followed by rigor; 42 days later anterior stricture divided with urethrotome; 7 days later incis. in perinæum	Slow Rigor	...	C.; could pass No. 13 for self	124 days	Fistula also treated by catheterism, and cystitis by injections
ɔum	...	Internal urethrotomy 11 days after admission; not quite satisfactory; question if stricture entirely divided	No. 7 passed 17 days after operation	Not stated	C.	92 days	Notes unsatisfactory.
..	...	7 days after admission internal urethrotomy; No. 9 passed	...	No. 9	C.	18 days	3 weeks after leaving No. 12 passed, but with some difficulty, by himself.
..	...	9 days after admission stricture was divided by urethrotome, and bladder washed out; no rigor	Good	...	C.	22 days	Taught to pass catheter for himself.
..	...	29 days after admission internal urethrotomy; no rigor	Fair	No. 9	Much relieved	43 days	When in hospital before, Cock's operation and perinæal section performed; passed No. 8 for self.
ell bu- hed nd ong	...	9 days after admission internal urethrotomy, Maisonneuve's instrument; rigors afterwards	Good Rigor	No. 9	C.	24 days	Same operation, ? internal urethrotomy, performed in Univ. Coll. Hospital by Mr. B. Hill 6 years before.
..	...	14/1/87, Internal urethrotomy by Mr. Croft	Rigor; slight epidids.	...	No. 12	...	Able to pass No. 10 for self easily.

No.	Reference.	Date.	Name.	Age.	Occupation.	Stricture.			Retention.			
						Situation & number.	Calibre.	Duration & cause.	Cause.	Degree.	Duration.	Complications.
20	N. B., vol. iii, B. 83	7/12/80 17/1/81	H. E.	49	...	Single, bulb.	Filiform bougie	Gon., 8 years	...	...	...	Rheumatism
21	84	6/9/81 19/10/81	T. R. A.	32	Painter	6¾ in. from meatus	No. 3	Gon., 2 years	...	...	...	...
22	86	8/10/81 7/11/81	W. S.	65	Porter	Memb. part	Filiform bougie	Gon., 8 years	...	...	...	Slight alb.
23	87	2/11/81 30/12/81	G. L.	40	?	About 5½ in. from meatus	Catgut guide	Gon., 1 year	Gradual contraction	Incomplete	?	Alb. and granular casts, abscess of test., cystitis
24	92	19/12/81 4/4/82	J. E.	38	Boiler-maker	More than one	No. 2 (S.)	Gon. 1862; hard drinker; stricture in 1874	Gradual contraction, perinæal abscess, drink	Incomplete	...	...
25	97	14/12/81 11/1/82	G. H.	36	Labourer	5¼ in. from meatus	No. 2 (E.)	Gon., 7 years previous	...	...	...	...

ral - m.	Duration.	Treatment.		Progress.	Result.		Duration of residence.	Remarks.
		Non-instrumental.	Instrumental.		Immediate.	Remote.		
ll a- ed, h- ic	...	...	Internal urethrotomy 6 days after admission; a rigor next day, and no inst. passed for 8 days afterwards	Slow Rigor	...	No. 10, C.	41 days	...
.	...	...	27 days after admission partial operation of internal urethrotomy; 3 days after No. 11½ Eng. passed; slight rigors afterwards	Slow Rigor	...	No. 9, C.	43 days	...
.	...	...	9 days after admission, partial division by Teevan's inst.; No. 5 passed, removed for rigor (106·8°) next morning	Slow Rigor	No. 5	No. 10, C.	30 days	After operation, dilatation employed.
.	...	Hot flannels	14 days after admission internal urethrotomy; No. 5 tied in	Slow; several shiverings & some few rigors during treat.	No. 5	No. 12, C.	59 days	The bladder was washed out for some time after the operation, a No. 12 being frequently passed for the purpose; had shivering at times before operation, none traceable to it.
co- lic; ine on- ins lb.	Jan. 7	Pot.br. &chlor. on admiss.; bladdr. washed with Condy's fluid Quin., gr. x	Perinæal section by Mr. Croft on admission, No. 11 (E.) tied in; Teevan's filiform bougie, No. $\frac{1}{24}$ passed 7/1/82; No. 2 (S.) passed 26/1/84; No. 3 (S.) passed 7/2/84. Internal urethrotomy by Mr. Croft 16/2/84; No. 8 (S.) passed; No. 9 (S.) passed 20/2/84. 10/3/84, patient passed No. 9 (B.) himself easily	Slow; rigor Feb. 21	No. 8 (S.)	No. 9 (B.), Mar. 10	106 days	Readmitted 22/5/84 with a perinæal urinary fistula; he had neglected to pass an instrument after his discharge. See Case No. 34.
...	...	H. S. Co. Quin.	No. 2 (F.) passed dly. until 24/12/81, when No. 5 (E.) was passed. Internal urethrotomy by Mr. Croft 2/1/82; Teevan's urethrotome used	Rapid	No. 8 (E.), Jan. 2	No. 12 (E.), Feb. 5	28 days	...

No.	Reference.	Date.	Name.	Age.	Occupation.	Stricture.			Retention.			
						Situation & number.	Calibre.	Duration & cause.	Cause.	Degree.	Duration.	Complications.
26	99	8/2/82 21/2/82	C. F.	45	Marine store dealer	5 in. from meatus	No instrument could be passed; calibre of stream size of No. 3	Gon., 18 years previous	Gradual contraction, drink, exposure	Incomplete	...	...
27	124	Readmitted 24/11/83	,,	...	...	...	No instrument could be passed	...	Gradual contraction, 3 mos.	Complete	...	Congestion
28	100	11/5/82 31/5/82	D. L.	30	Scaffolder	...	No. ½	Gon., 7 yrs. and 5 yrs. prev., 4 mos. aft. last	...	...	...	...
29	125	17/12/82	T. W.	26	Carman	3 strictures; bulbomembranous	No instrument passed	Gon., 7 years ago	Gradual contraction	Complete	...	...
30	126	16/12/82 18/1/83	H. P.	51	Draper	...	No. 1 (E.) could not be passed	Disch. from ureth. 24 yrs. prev.	...	...	...	...
31	128	25/4/83 4/7/83	J. R.	52	...	Penile	Catgut guide could not be passed	Gon., 35 years previous	...	Incomplete	...	Fistula
32	132	28/9/83 10/12/83	C. D.	51	'Bus conductor	3½ in. from meatus	Catgut guide passed	Gon., 19 yrs. previous; Gon., 4 yrs. previous	...	...	...	...
33	105	1/3/82 6/4/82	H. K.	60	Waterman	About 5 in. from meatus; more than one	Catgut guide passed	Gon., 15 yrs. previous	...	...	...	Perineal fistula

Duration.	Treatment.		Progress.	Result.		Duration of residence.	Remarks.
	Non-instrumental.	Instrumental.		Immediate.	Remote.		
...	Warm bath, H. S. Co. ʒij	Internal urethrotomy by Mr. Croft, 16/2/82	Rapid	No. 8, Feb. 16	No. 10, Feb. 18	13 days	...
...	Hot bath	Internal urethrotomy by Mr. Croft, 29/11/83	Rapid	No. 8	Passes water easily	6 days	Patient went on well until 3 months before readmission (*i. e.* for 10 months after first operation).
...	...	17/4/82, No. 4 passed. 18/4/82, internal urethrotomy by Mr. Croft	Rapid	No. 9, Ap. 29	May 3, No. 10	20 days	See No. 19.
...	Hot bath	18/12/82, Catgut guide. 21/12/84, internal urethrotomy by Mr. Croft	...	No. 3, Dec. 21	"Larger inst. gradually introduced"	21 days	Learnt to pass catheter for himself
...	...	20/12/82, catgut guide passed. Internal urethrotomy by Mr. Croft	Rigor	No note	Jan. 1 No. 5; Jan. 16 No. 8	33 days	The operation (20th Dec.) was followed by a rigor. Epididymitis of r. testicle 10th Jan. Rigor 16th Jan.; temp. 105°.
...	Hot bath June 15, Quin. gr. viij	24/5/83, int. ureth. by Mr. Croft, Teevan's straight urethrotome. 15/6/83, ureth. again performed, "a larger instrument" used	No rigor	1st op. No. 1, May 24. 2nd op. No. 6	1st op., No. 8, May 28. 2nd op. No. 12, June 25	68 days	...
...	Quin. Bladder washed	Catgut guide passed 4/10/83 and 15/10/83; "Stricture scarified" 1/11/83 and No. 8 passed	Slow	No. 8, Nov. 4	No. 10, Nov. 5; No. 8 (F.), Dec. 10	73 days	Had external urethrotomy performed in America 7 years previous; No. 12 afterwards passed. Had ague in America.
...	...	Catgut guide and No. 2 passed (E.) 6/3/82; 9/3/82 No. 7; 13/3/82 No. 8. 29/3/82 "incomplete" internal ureth. performed	No rigor	No note	No note	37 days	Patient appears to have had extravasation twice previous to admission, 13 years and (2) 3 months before; catheterism for fistula.

No.	Reference.	Date.	Name.	Age.	Occupation	Stricture.			Retention.			
						Situation & number.	Calibre.	Duration & cause.	Cause.	Degree.	Duration.	Complications.
34	155	22/5/84 15/9/84	J. E.	43	Boiler-maker	Strictures	No. 3 (F.)	Gon., 22 yrs. previous	...	...	...	Urinary fistula
35	157	5/10/83 16/1/84	F. C.	39	Fishmonger	3. 1. Near meatus. 2. 1 in. from meatus. 3. At junction of bulbous with membranous	Catgut guide	Gon., stricture, 10 yrs.	Gradual contraction	Complete	1 day	...
36	159	10/2/84 21/3/84	E. B.	44	Commissionaire	About 5½ in. from meatus	Filiform bougie	Gon., stricture, 10 yrs.	Gradual contraction	Complete	7 hrs.	...
37	160	30/5/84 13/6/84	H. C.	30	Coachman	3. 1. At meatus. 2. Penile. 3. Penile with membranous	No. 6	Gon., 10 yrs. 18 mos. prev.; partial strict. since 1st attack	...	Complete	12 hrs.	...
38	....	3/9/84 7/10/84	G. E.	36	Conductor	2. 1. 3 in. 2. 6 in. from meatus	No. 3 (S.)	Gon., stricture, 17 yrs. (?)	...	...	..	...
39	...	16/8/84 12/10/84	J. F.	42	Labourer	3	1st admitted No. 8; No. 1 not passed	Cause stated to be 'gravl.' Passed a small stone once	...	...	...	...

eral n- on.	Duration.	Treatment. Non-instrumental.	Treatment. Instrumental.	Progress.	Result. Immediate.	Result. Remote.	Duration of residence.	Remarks.
.	...	...	Gradually dilated up to No.8,23/6/84. Internal urethrotomy by Mr. Croft 23/6/84, using sharp urethrotome (No. 20)."	Rigors (2)	...	No. 11	...	...
		Quin.	8/9/84, internal urethrotomy by Mr. Clutton	Slight shivers	No. 12 (E.)	Passes No. 12 himself easily	116 days	See Case No. 24.
ice lb.	...	Hot bath, Pil. Opii gr. j, Quin. Sulph. gr. x	12/10/83 & 16/10/83, unsuccessful attempts to pass No. 2 silver. 31/10/83, No. 1 catheter tied in. 26/11/83, stricture dilated up to 11½ by means of grooved staff and dilators, No. 8 passed. 20/12/83, internal ureth. by Mr. Croft	Oct. 31 rigor. Nov.30 3 rigors, slight. Dec. 21 101·4°, slight rigor	No. 8	No. 10	103 days	After the dilatation on 26th Nov. catheters were passed by means of a guide; all other attempts failed.
o ., ne s	...	...	A filiform bougie was passed, but all attempts to pass larger instruments failed.	Rigor at 11 p.m. after operation, 102·6°	No. 6	...	40 days	Patient had had ague in India 23 years before; since then he had two attacks every year. Taught to pass catheter No. 8 for self.
		Bladr. washd. quin.	3/3/84, internal urethrotomy by Mr. Croft					
.	...	...	9/6/84, internal urethrotomy by Mr. Croft	...	No. 7½	No. 9	14 days	Ditto.
.	...	Tinct. Opii ♏x	11/9/84, internal urethrotomy (Maisonneuve's) by Mr. Clutton	Epidid. Oct. 1; slight rigors Sep. 22 and 26	Cathet. tied in No. 11 Eng.	Steel sounds 30 French	34 days	Readmitted Jan., 1885. Int. urethrotomy, Feb., 1885 (Otis).
.	...	Mist. Emol. H. S. Co. ℥jss, ht. baths. Morph. Supp.	12/9/84, internal urethrotomy	...	No. 1 tied in	Oct. 6 No.12; Oct. 10 steel sounds 26—30	65 days	...

No.	Reference.	Date.	Name.	Age.	Occupation.	Stricture.			Retention.			
						Situation & number.	Calibre.	Duration & cause.	Cause.	Degree.	Duration.	Complications.
40	Vol.iii, B. 161	3/11/84 18/11/84	T. F.	65	Labourer	Bulbo membr.	No. 2 Eng.	40 yrs. gon. previous; strict., 20 yrs.	...	More than one attack	...	Album.
41	162	12/5/84 2/6/84	T. W. ?	42	Bricklayer	2. 1. 4 in. from meatus. 2. 5½ in. ?	No. 3	Gon., 20 yrs. ago	...	...	...	...
42	...	22/7/84 10/8/84	F. C.	39	Clerk	"Very tight"		Gon., 12 yrs. ago	...	...	...	...
43	...	8/8/84 12/9/84	E. H.	34	...	2. 1. 3 in. from meatus. 2. (?)	Catgut guide	Gon., 15 yrs. ago; stricture, 12 yrs.	...	...	...	...
44	R. N.	24/7/85 26/9/85	W. M.	63	...	1. 2½ in. from meatus. 2. 6½ in.	Impermeable, ruptured, extravasation of urine 2nd time	Several years, cause not stated	...	Complete extrav. 2nd time	5 days	Rupt. ureth., extrav 2nd time, enlarged prost. phym
45	R. N.	9/4/85 24/4/85	H. L.	38	Labourer	3 in. (and more ?) from meatus	No. 1 black catheter	18 yrs., ? injury, ? gon.	...	Not complete	...	Abscess, peri-ureth. at bulb
46	Vol.iii, B. 184	23/6/85 22/7/85	G. B.	29	Van driver	Junction of bulb and memb. urethra	No. 1 black cath. or bougie; No. 5 with Croft's inst. (b. cons. and grad. cath.)	Gon., 10 yrs. ago; inj. to penis 7 yrs. ago, but no ecchy. nor hæmor.	...	4 attacks of incomplete retent., shiver. 2 days before admission	...	...

ieral in- ion.	Duration.	Treatment.		Progress.	Result.		Duration of residence.	Remarks.
		Non-instrumental.	Instrumental.		Immediate.	Remote.		
ine, on- er- le an- of no ;"	...	...	12/11/84, internal urethrotomy by Mr. Croft (Teevan's instrument)	No rigor	No. 8	...	15 days	The notes state that 4 or 5 years previous he was admitted to the hospital for "retention;" on his discharge catheterism employed.
.	...	...	18/5/84, internal urethrotomy by Mr. Croft	No rigor	No. 7	No. 12 (E.)	21 days	...
.	...	...	26/7/84, internal urethrotomy by Mr. Croft. "Stricture divided from before backwards"	...	No. 13	"Passes a full sized cathet. himself"	19 days	Readmitted. See Case No. 35, Oct., 1883.
.	...	...	Catgut guide, Aug. 13, 16, 20; 21, "small cathet."	Aug. 21 temp. 101°; no rigor after oper.	No. 10	No. 30 French	35 days	Patient complained of pain in the kidney 5 days after the operation; no rise of temp.
		Hot bath	3/9/84, internal urethrotomy by Mr. Clutton					
d - st.	...	...	1. Perinæal puncture. 2. 17/8/85, internal urethrotomy by Mr. Clutton; Otis' dilatation immediately after to No. 28 French	Rapid improvement	Rigor, 1 only	...	40 days after int. uret.	Dilatation kept up by sounds.
ir th	...	...	16/4/85, internal urethrotomy by Mr. Clutton, Maisonneuve; then Otis' dilatation and urethrometer to 35 French, and No. 32 French metal bougie after	...	Reaction., hæmorr. slight, painful erect., no rig.	...	Aft. op. 8 days	...
	...	...	9/7/85, internal urethrotomy by Mr. Croft. 16/7/85, No. 9 and 11 Eng. gauge catheter passed easily	...	Rigor twice, no fever	...	Aft. op. 13 days	...

No.	Reference.	Date.	Name.	Age.	Occupation.	Stricture.			Retention.			
						Situation & number.	Calibre.	Duration & cause.	Cause.	Degree.	Duration.	Complications.
47	R. N.	7/9/85 7/10/85	S. L.	36	Driller	6½ in. from meatus	No. 7 passed with difficulty	Gon., 12 or 13 yrs. ago; sympt. 10 yrs.	...	Incomplete reten., increasing difficulty	...	...
48	R.N., vol. iii, B. 186	22/10/85 29/11/85	J. G.	47	Paper mills	Bulb, memb.	Filiform bougie only passed	Many years; gon., 30 yrs. ago; strict. bad 9 yrs.ago	...	Incomplete	...	...
49	R. N.	3/5/86 22/5/86	S. R.	21	Shoemaker	Memb. urethra	No. 3 catheter	7½ yrs., ? more; cause not known, no gon. always suffrd. freqnt. mict. & difficulty	...	...	...	Fistul., scrotal and perinæal urine alk. ? pus
50	R. N.	1/11/86 –/11/86	E. T.	30	Cement works	Bulbs, memb. 1	Filiform	8 mos., gon. 5 or 6 yrs.ago	...	Not complete	...	...

eral n- on.	Duration.	Treatment.		Progress.	Result.		Duration of residence.	Remarks.
		Non-instrumental.	Instrumental.		Immediate.	Remote.		
.	...	...	25/9/85, internal urethrotomy by Mr. Clutton; dilatation, steel sounds up to No. 28 French	...	Sep.26, rig.(2); Sep.28, rig.(2); no continuos. fever	...	...	Went out before he was well. Oct. 7, slight rigor on day of going out, after catheterism.
ch - ty	...	...	Internal urethrotomy by Mr. Croft. Catheterism and guides. Catheterism without guides	...	Rigor 4th day, no fever	...	...	No. 13 Eng. gauge passed easily.
ir	...	...	10/6/86, internal urethrotomy; No. 8 catheter after bladder washed out. 14/6/86, No. 11. Taught to pass catheter for self.	Good; learnt to pass cath. for self	No rigor	...	Totl. 9 days 12 after int. uret.	12 months previously in St. Bartholomew's. Continued catheterism used and fistula closed. Could pass No. 10 for himself. Lately stricture closed and fistula reopened.
od	...	...	6/11/86, internal urethrotomy by Mr. Croft; catheterism	No rigor, no rise of T.	...	...	...	...

TYPHUS AND RELAPSING FEVERS IN EGYPT.

By F. M. SANDWITH.

Typhus Fever.

"As yet there are no authentic records of typhus, such as we see it in this country, having been met with in Africa."[1] This passage, by my revered teacher, the late Charles Murchison, is chiefly responsible for the following paper on two of the fevers seen to-day in Egypt. He does not forget, however, to mention the well-known case of the Egyptian frigate which spread typhus at Liverpool in 1861. The crew had come from Alexandria, where typhus was then believed to be wholly unknown, unless imported, and had not suffered from any disease except dysentery, during a very rough passage of thirty-two days from Malta. In 1864, another Egyptian frigate communicated typhus at Toulon.[2]

In both these cases the typhus poison would seem to have been generated on board ship, under particularly filthy and favorable conditions, and to have impregnated the clothes of the crew without their suffering from it. This was a common experience in former days, notably at the "Black Assizes," which occurred for the last time at the Old Bailey in 1750. But all evidence of the spontaneous generation of typhus is of a negative and unsatisfactory nature.

I have had the records of the Egyptian Sanitary Department carefully searched, without any trace of typhus being found earlier than 1884. This does not at all prove its non-existence, for no trustworthy Government statistics were kept until that

[1] 'Continued Fevers of Great Britain,' 3rd ed., 1884, p. 59.

[2] Gourrier, Montpellier, 1866.

year, and local epidemics were reported upon by district doctors who had been trained in a school of no sharply-defined diagnosis, and had moreover learnt medicine from native professors who themselves had studied in France before the days of distinction between typhus and enteric. I may mention here that I have been repeatedly assured by native doctors that spotted typhus is quite unknown in Egypt.[1]

There is no evidence to show whether former outbreaks of plague masked accompanying cases of true typhus. It seems clear to me, both from past history and from the recent epidemics now recorded for the first time, that typhus in Egypt has never been universally epidemic, and further than when seen at the present time it has no tendency to spread to neighbouring villages.

Bubonic plague is said (J. Netten Radcliffe) to have been known as endemic, and occasionally epidemic, in Egypt two centuries before Christ. In the sixth century of the Christian era, it broke out explosively in Egypt, and presently extended for the first time over the whole of Europe. There are numerous records of plague in Egypt in the fifteenth, sixteenth, seventeenth, and eighteenth centuries, but in the year 1844 Egypt finally became emancipated from this disease. Kinglake, who must have seen one of the last outbreaks in Cairo, says in 'Eothen' that out of a population of about 200,000, there were reported to be 500 to 1200 deaths a day, and that of 25,000 people at Alexandria, 12,000 had died. Between 1853 and 1879 there have been a dozen manifestations in several widely-separated places of Africa and Asia, but there has been no reappearance in Egypt.

It is extremely probable that many of these outbreaks of plague have included cases of the disease which until a few years ago was called in Egypt "typhus d'Europe."

It is difficult to believe that the habits and habitations of the Egyptians were more filthy fifty years ago than to-day, or

[1] McGregor ('Medical Sketches of the Expedition to Egypt from India.' London, 1804, p. 103), who had himself lately suffered from typhus in England, says that no well-marked case of typhus occurred to the English troops in Egypt. "Were typhus, our gaol or hospital fever, to be imported into a town in Egypt, we can hardly conceive how it could ever be eradicated by the natives. The structure of their houses and plans of their streets are calculated for the production of disease, and the preservation and concentration of contagion."

that the concentrated essence of human and animal exhalations due to overcrowding without adequate ventilation was more intense at that time than in any modern Egyptian village.

But the towns of Cairo and Alexandria are without doubt cleaner and more airy than formerly, and the causal element of starvation has no footing among the always robust natives of Egypt. Plague has ceased in Egypt, cholera is a rare visitor, but typhus is apparently endemic, and enteric, masked under other names, is always prevalent.

Hirsch says there were twenty-one epidemics of plague in Egypt between the years 1783 and 1844, some embracing a period of two years or more.

This includes the outbreaks described by Larrey and other physicians of the French expedition (1798-1801).[1] They recorded cases of undoubted plague, but the following description might very reasonably have included some instances of typhus. "Lastly, among many of the sick, the disease developed but slight symptoms, with no intense fever, often without buboes or carbuncles, petechiæ alone being present."

Clot Bey, the able French founder of the Sanitary Department in Egypt, described the epidemic of 1834-35, in which 50,000 deaths occurred.[2] He divided the sick into three classes: (1) Those who died on the first or second day; (2) those dying on the fourth or fifth day; and (3) those whose illnesses ended between the fourteenth and twentieth day. As might be expected, among the last class are cases which were very likely typhus, mingled with true plague patients. For instance, his Case 21 (p. 144) is a good description of slow, embarrassed speech, incoherent answers, stupid mind, dry white tongue, rapid pulse, hot skin, petechiæ on arms and chest, and bubo in right axilla, frontal headache, thirst, constipation, injected conjunctiva. A week later all symptoms had improved, and the bubo was opened, yielding much thick pus. The patient then improved gradually, and left the hospital after twenty-four days' stay. This man was lucky, and escaped with only one blood-letting of one pound.

Another of his cases (p. 148) had a livid petechial eruption

[1] Dr. Savaresi ('Mémoires sur l'Egypte,' Paris, 1802, ii, p. 341) describes typhus under that name at Damietta in 1798.

[2] Clot Bey, 'De la Peste observée en Egypte,' Paris, 1840, p. 62.

all over the body, and swelling of the parotid glands. The autopsy, fifteen hours after death, showed excess of brain serum, black liquid blood without clots, petechiæ on diaphragm, liver, kidneys, and left ventricle of heart, and ecchymoses in the muscles of the neck and in the large intestine.

Lastly, Murchison reports (p. 220) that Clot Bey was much struck with some cases of typhus with parotid swellings shown to him at the London Fever Hospital, and he "declared that in Egypt they would be regarded as examples of plague."

Veit has written of a severe epidemic of typhus at Cairo in 1836, and Pruner,[1] besides saying that typhus is known as a mild epidemic both in the capital and in the villages of Egypt, gives particulars of two regiments at the citadel being attacked in 1836-37. The soldiers consisted of Egyptian recruits and Syrians, and no less than 3000 were admitted to Kasr el Aini hospital out of a total of 7000, and from them the fever was speedily communicated to doctors, attendants, and other hospital patients. Pruner noticed the absence of decubitus and extensive petechiæ, with the presence of parotid buboes, and, post mortem, congestion of all organs, specially the spleen and liver, with petechiæ on the serous membranes. He says there was an immense mortality, more than one third of those attacked dying. Death usually took place from the seventh to the eleventh day, and almost never after the thirteenth.

Griesinger[2] says that in Egypt spotted typhus appears frequently, sometimes alone and sometimes mixed with other fevers, and he emphasises the absence of a perfect eruption, which is easily explained by the difficulty of detecting it on dark-coloured skins. He also states, on Penay's authority, that typhus is endemic in Nubia, and often very malignant there, with well-marked petechiæ on persons with light-coloured skins. In his 'Observations on Egyptian Diseases'[3] he divides "typhoid diseases" into (1) ileotyphus, (2) broncho-(pneumo-) typhus, (3) bilious typhoid. Of the second variety, real typhus, he saw in Cairo in 1851-52 sixty-three cases, but

[1] 'Krankheiten des Orient's,' Erlangen, 1847; 'Topographie Médicale du Caire,' Munich, 1847, p. 103.

[2] 'Maladies Infectieuses,' Paris, 1868, p. 151.

[3] 'Gesammelte Abhandlungen,' Berlin, 1872, vol. ii, p. 490.

he says himself that thirty of these were very slight, and seemed hardly like the more severe form. Many of them were convalescent two or three days after admission and afterwards suffered from a fresh access of fever, so that he doubted what this "transitory fever without local seat of disease" should be called. If we assume that these milder cases were relapsing, there still remain thirty-three patients of the graver type who were apparently all typhus. They were all Egyptian fellahs, with the exception of one Italian and one German, and consisted of soldiers drawn from different regiments, quartered in various districts, besides civilians, two medical students, and some workmen who came from gangs where underfeeding, overcrowding, putrid air, and personal filth were all present. Together with these admissions came many men from the same dwellings suffering from "bilious typhoid." Of the thirty-three apparently real typhus patients four died, and the general length of illness varied from ten to sixteen days. The principal symptoms noted were petechiæ, deafness, stupor, delirium, pains in limbs, high fever, weak rapid pulse, black crusted tongue, redness of fauces, slight bronchitis, epistaxis, &c. The post-mortem appearances of the four cases were also typical of true typhus.

In 1864 Sir S. Baker[1] met with "malignant typhus," which had no characteristic symptom of plague, at Khartoum. In 1877 Dr. Chaffey Bey, then Quarantine Inspector for Egypt, tells me that he saw at Taifè in Arabia an epidemic of typhus with petechiæ but without buboes. If buboes had been present it would immediately have been officially returned as plague. I mention this because Chaffey Bey is the only doctor I know in Egypt who has seen both plague and typhus, though both of them were in Asia.

Dr. Grant Bey tells me that he saw an epidemic of spotted typhus in Cairo in 1876, and Dr. Kartulis, after eight years' experience in Alexandria, writes to me that a few cases of spotted typhus occur there almost every year.

I now come to the two outbreaks of 1884 and 1886, of which I have detailed notes. It will be noticed that in both cases there was simultaneous relapsing fever, and that the

[1] 'Albert Nyanza,' 1866, ii, pp. 300—340.

outbreaks were at first masked under the generic heading "typhoid."

Typhus Epidemic at Nahasse.

On August 31st, 1884, I received by telegram official news from the chief doctor of the province that "typhoid fever" had broken out in the village of Nahasse, of about 2000 inhabitants, near Zagazig, and that twenty-two persons were then suffering from it.

Native doctors were at once ordered to the spot, and were followed by Mr. Hooker, an inspector of great intelligence, but not a medical man. He found that all the cases had occurred in one quarter of the village, that the inhabitants' drinking water was drawn from a well in a court of one of the mosques, and that the drainage from the mosque latrines infiltrated into this well. He reported that thirteen cases of "fever" had come from the house of the head-man, where "every conceivable kind of filth lay about," and he very shrewdly suspected that "typhoid" was an erroneous diagnosis.

Unable to leave Cairo myself, I requested Dr. Milton to go to the infected village and tell us with what fever we were dealing. He at once telegraphed the existence of typhus and relapsing fevers, and obtained leave to superintend the hospital camp for ten days. In order to convince our native colleagues of the accuracy of the diagnosis, pieces of skin from patients dying of typhus were brought to Cairo and showed very well-marked petechiæ. Dr. Engel also at this time showed the spirochæta Obermeiri for the first time in Egypt. The disease had been smouldering in this village for about two months, always concealed by the sheikhs of this and neighbouring hamlets, to which, however, the fever never spread. Even when hospital tents, a kitchen, food, and an English doctor had been provided at the Government expense, one of the head-men, who had already lost ten members of his family, hid thirteen people in one room of his house, two of whom were already fever stricken when a house-to-house visitation was made.

The whole number of patients treated from August 30th to November 15th, when the last convalescent was discharged,

was 110, divided roughly into typhus about 25, relapsing 75, and non-febrile diseases perhaps 10.

Dr. Milton saw only ten cases of typhus, of which seven died and three recovered. His cases included three under 10 years, one between 11 and 20, five between 31 and 40, and one between 41 and 50. Owing to the great opposition of the villagers, and to prevent increased unpopularity, no autopsies were made. The chief symptoms noted were, great prostration, delirium constant and of the low muttering character, and tongue becoming dry and brown on the third and even second day. The temperature varied from 102·5° to 104°, and the pulse from 110 to 135, becoming very soft after the third day. Diagnosis between the two fevers was difficult until the fourth or fifth day, when a well-marked typhus rash appeared. Dr. Milton reported at the time, "It was usually situated on the anterior fold of the axilla, the upper arm, or the chest, and consisted at first of scattered, slightly elevated pink spots, not unlike a measles eruption and disappearing entirely on pressure. After two or three days the spots became distinctly petechial, and at length each one became replaced by a livid purple-coloured petechia not disappearing or even altering on pressure."

The eruption was copious, the spots very livid, and the mortality, it will be noticed, was 70 per cent. Death occurred from the ninth to the twelfth day, after continued high fever and the "typhoid state."

In the three cases which recovered "there was a distinct remission in the temperature on the seventh day, followed by a rise to the former height, ending on the twelfth or fourteenth day in a permanent defervescence." In one man, aged forty, there were double parotid buboes, with little pus, three days before death.

The treatment of these typhus patients consisted chiefly in saline purgatives when necessary, and in giving brandy freely on the first sign of increasing weakness.

Epidemic at Tourah Prison.

The outbreak of typhus at Tourah merits a rather longer description, and the purely medical notes may reasonably be

preceded by a short account of the history of the epidemic, and the causes which led to its appearance. These are equally a preface to my remarks on relapsing at Tourah.

History.—The convict prison at Tourah was established in 1885 as a hard labour gaol, to relieve the overcrowding in other prisons.

Tourah itself is a hamlet of stone and mud huts, about eight miles from Cairo, on the right bank of the Nile, surrounded by the purest desert air, and about half a mile from the foot of the limestone quarries which supply Cairo with building-stone. An old military hospital, almost in ruins, was handed over to the Prisons Department in 1884, and served temporarily for the 400 convicts who built the new prison, which will be described presently. In October, 1885, the number of prisoners at Tourah had already risen to 960, there being cell accommodation for only 648, and the sick-rate naturally increased. Sick prisoners at this time were divided into three classes: those whose maladies were trivial and undeveloped were excused from work and kept under observation by the prison doctor; slight cases were treated by him in an infirmary ward, while all serious cases requiring nursing were sent to the civil hospital in Cairo. In the month of January, 1886, there were twenty-two deaths at Tourah, excluding eight which occurred on one day from an accident caused by a dynamite explosion in the quarry. Nine convicts also died at the Cairo hospital in January, viz. two from lung disease, and seven from diarrhœa or dysentery.

In February the average number in the infirmary at Tourah was thirty-eight, with twelve deaths, including six from lung affections, five from bowel affections, and one from some other disease, not fever. Besides this thirteen convicts died at the Cairo hospital, one diagnosed as "fever" and the remainder as dysentery.

In March the average number in the infirmary was forty-six, with twenty-seven deaths, which were returned as eleven from lung affections, four from bowel complaints, three from accidents, one from ordinary disease, and eight from "fevers." The number of sick on March 31st had risen to sixty-five, owing partly to the arrival of some infirm old men from the provinces. On this date also there was an attempted escape by some of

the convicts working at the quarries. Two of them were shot by the sentries, many were severely handled at the time, and the ringleaders were punished on the following day. This, no doubt, had a distinctly depressing effect on the general body of convicts. The deaths at Cairo in March rose to twenty-three, of which fourteen were due to dysentery, and the remainder to chest affections.

With the beginning of April an epidemic broke out with great virulence, and the daily death-rate, which had never exceeded three (excluding surgical accidents) rose to five and even seven. On April 3rd there were fifty-seven sick in an old part of the building hitherto used as workshops, and now converted into a temporary hospital, and on April 4th there were no less than 174 new admissions. Application for special aid was made by the prison officials to the Sanitary Department, and a native doctor, apothecary, 100 beds, and many hospital necessaries were despatched. On the same day the native sanitary inspector of Cairo was directed to make an inspection of the prison and adjoining village. The diagnosis of the epidemic at this time was veiled in obscurity. The Prisons Department believed the bulk of the cases to be pneumonia, the doctor suspected typhus, and the Cairo inspector reported "the majority suffering from a gastric disease of a typhic form, some from a bilious form, and a few from typhoid fever of an adynamic form."

But at the end of April the chief of the Prisons Department invited Brigade Surgeon Greene, Inspector-General of the Sanitary Department, to visit the scene of the epidemic with him, and the latter, having obtained permission to bring Dr. Milton and Dr. Engel, the fact was established that many cases of typhus were present, but, owing to want of time, no attempt was made at detailed diagnosis.

The number of sick in the extemporised Tourah hospital rose from 81 on April 1st, to 260 on April 9th, and from that date decreased to 154 on April 30th. The total number of prisoners diminished from 964 on April 1st to 817 on April 30th, this being almost entirely due to 145 deaths during the month. This tremendous mortality was made up of 25 from chest affections, 19 from bowel affections, 9 from other

diseases, and 92 from "fevers." During April only 3 convicts died at Cairo hospital.

A commission, consisting of three native doctors was, at the request of the Prisons Department, sent down on May 12th and 13th, but their report throws no light upon the extent or diagnosis of the epidemic.

Until this time the Sanitary Department disclaimed all responsibility with regard to the epidemic, urging, with some reason, that so long as two doctors were in charge of the gaols they must be responsible for all hygienic measures as heretofore, and that the sanitary officers, while willing to render every aid in their power, could not interfere unless the whole management of the sick was placed in their hands, and their recommendations for arresting the epidemic carried out.

Upon May 14th this control was conceded, and Dr. Milton spent the first of many days in reducing chaos to order. On the evening of that day he invited me to assist him, and with one exception I was at Tourah daily from May 15th to June 24th. I had at this time no connection with the Egyptian Government,—I worked merely as Dr. Milton's friend, carrying out his directions during his temporary absences, and, in my opinion, the whole credit of arresting the epidemic is due to him. Only those medical men who have suddenly been brought in contact with masses of sick or wounded men, hitherto uncared for, can appreciate the stress of work of the first few days. The condition of the hospital at this time merits a brief description.

About 150 men, wearing their own clothes and chained in couples by leg irons four feet long, with heavy links, were in the hospital, besides about 100 others "under observation," chained two together, and crouching in the courtyard under the shade of the walls and trees. These latter were very cursorily inspected every day by the prison doctor, received no treatment except Epsom salts, were fed on the prison diet, and were locked up without attendants in the prison cells at night. Many of them begged for assistance, but on the first day our attention had to be chiefly bestowed upon the patients in the hospital. Many of the sick were lying on wooden pallets close to the ground, each with a mat and two blankets, but without mattresses or pillows.

They were begrimed with dirt, most of them having been workers at the quarry, and they and their clothing were covered with large lice, which frequently transferred themselves to us while examining our patients. There were no treatment sheets, no diagnosis, no notes, no records of temperature, and no sufficient number of attendants. The wards were lighted and ventilated by small barred openings in the walls near the roof. The conservancy arrangements consisted of open pails for the excreta, which were left in the middle of the wards until full. One diet indiscriminately for all the sick, consisted of prison rations, with the addition of meat soup.

Very few drugs were administered, and there was a complete absence of hospital organization.

In spite of the increasing hot weather, and a shade temperature which during our visits was over 110° F., English energy was successfully infused into our native helpers, and in a week's time they naïvely told us it now looked "like a hospital." The only available hospital was an old two-storeyed house within the prison enclosure, but separated by a small interval from the other buildings. In each storey there was one large room of 24,000 and eight rooms of 9240 cubic feet each.

In the large room of the upper floor were placed eighteen beds for typhus patients, giving each a minimum of 2440 cubic feet, and as soon as the number of sick permitted, the beds were reduced to six, giving each patient a minimum of 4000 cubic feet. In two of the smaller wards of the upper storey were placed the remaining eight typhus patients, each having 2310 cubic feet. All the beds in these three wards were placed in the middle of the floor away from the walls and corners, the big ward was used for the bad, and the smaller rooms for the convalescent and lighter cases. The large room on the ground floor was given up to the worst diarrhœa and dysentery patients, at first twenty with 1220 each, and a week later twelve with more than 2000 cubic feet. The relapsing and ordinary patients filled the rest of the hospital, at first with only 770 cubic feet each, but after the revision at the end of the first week, and the establishment of convalescent tents, each man was secured 1150 cubic feet, even if his ward was completely full.

All ventilation holes and windows were enlarged to their

utmost, and fixed permanently open, and the doors taken off their hinges or fixed to the walls.

A bath-room was built, and until it was ready patients were washed in buckets and provided with clean clothes.

A complete hospital outfit for 200 patients arrived from Cairo within twenty-four hours, together with two native house surgeons and a supply of thermometers.

Voluuteers at the rate of one convict for ten sick were taken from the healthy prisoners to act as ward attendants, and about fifty others were employed in various ways. Chamber utensils were provided, and immediately after use taken outside the prison to air-tight tubs, which were carried out and emptied in the desert twice a day. A kitchen was built, a cook provided, and the patients put on the regulation hospital diets. A special dish composed of milk, eggs, and sugar, thickened with starch and subnitrate of bismuth was provided in unlimited quantity for all diarrhœa and dysentery patients.

A mixture of carbonate of ammonia and brandy was served out to all bad cases without waiting for diagnosis, and a sulphuric acid lemonade was given unstintingly to the diarrhœa cases and the thirsty. An open-air laundry with apparatus for boiling all dirty clothes was established on the dry beach.

The coupling chains of all the patients were cut, and the leg irons entirely removed from all typhus and dying cases, and would have been universally discarded, as in all other Egyptian hospitals, if the prison authorities had not refused to accept the responsibility of guarding the patients.

Every prisoner was inspected daily by the native doctor, who had orders to set aside "under observation," any prisoner making any complaint or showing any signs of illness however trifling. All these "under observation" cases were daily inspected by Dr. Milton or myself, and such as showed any signs of disease were sent into the observation ward. Here they were kept separate from the rest of the patients until a definite diagnosis was made, when they were transferred to their respective sections.

The remainder of the patients under observation were washed, treated with medicines, put on the more generous hospital diet, marched as far as the Nile twice a day for fresh air, and excused from all work. All patients leaving hospital

were sent into the "under observation" class for one or two months.

With regard to the prisoners showing no signs of disease, their work was diminished from eight hours to three, and their diet increased by the addition of four ounces of rice, sixteen ounces of vegetables, and five ounces of meat per diem.

That these measures were not unsuccessful, is, I think, proved by the following analysis of half-monthly deaths at Tourah alone, and there is, in my opinion, no reason for supposing that the epidemic would have ended among the existing prisoners, if some such energetic treatment had not been introduced.

1886: April.—First half 74 deaths; second half 71 deaths.

May.—First half 70·5 deaths; second half 30·5 deaths.

June.—First half 27 deaths; second half 9 deaths.

Advantage was taken of a Friday to examine the prisoners who were at work on the other six days of the week. Their appearance was very pitiable, dirty, lice-covered, thin, anæmic, with coated tongues and haggard faces, many of them complained of diarrhœa or fatigue, and several were at once admitted into hospital. To accommodate the increased number of patients, double tents of the Indian pattern were erected in a roped-in quarter of the courtyard, and were at once filled with convalescents and mild cases of diarrhœa. The more accurate system of inspection at once raised the number of hospital inmates to 218 on May 23rd, but from that date there was a gradual diminution of new cases, so that the number of typhus and relapsing patients fell from 136 on May 24th, to 81 on May 31st, and to a smaller number in June.

The last death among the prisoners attributable to the epidemic took place on June 24th, and a month later, after numerous delays, the few diarrhœa cases remaining were transferred to a building outside the prison which was converted into a permanent hospital.

The deaths at Cairo hospital during May were five, all from typhus. After this no further cases were sent into the town for treatment.

The following figures show the death-rate for all diseases in a tabular form:

TABLE I.

Date.	Number of convicts on first day of month.	Deaths at Tourah and Cairo.	Rate per 1000 per annum.	Remarks.
1886				
January ...	985	31	377	8 deaths from accident omitted.
February .	947	26	328	
March ...	1011	48	570	3 deaths from accident omitted.
April	964	148	1842	
May	811	106	1568	
June	713	36	606	
July	656	6	109	

Causes.—It was stated at the time that relapsing fever was present in two distant districts in Upper and Lower Egypt, but there is no information in the Sanitary Department of an epidemic during the spring of 1886, there is no evidence that any prisoners had come to Tourah from either of these two districts, and it is moreover a fact that all convicts arriving at Tourah had already spent many months in other prisons.

The causes of the Tourah epidemic existing in the prison itself would seem to have been five-fold: (1) overcrowding; (2) deficient ventilation; (3) uncleanliness; (4) faulty conservancy arrangements; (5) insufficient diet for the work required.

I have already referred to the mental depression among the convicts after the attempted escape of March 31st, and this was probably a predisposing cause. Those who looked on the epidemic as pneumonia contended that cold weather had caused the disease, and that typhus had afterwards broken out among the pneumonia patients, but all evidence is wanting to support this theory. Reference to Table II does not show that March was a specially cold month, but as a fact the weekly averages of temperature during March fell from 65·6° in the first week to 63°, 62·9°, 58°, and in the first week of April became 60·6°. The minimum temperature fell below 45° on the nights of March 1st, 14th, 15th, and again on April 6th. A few drops of rain fell on five days during March. The wind was generally north-north-east or west.

TABLE II.

1886.	Average temperature of the month.	Maximum of the month.	Minimum of the month.
January	57·3°	73·8°	42·3°
February	58·6	80·4	39·6
March	61·6	87·3	41·8
April	69	102·4	44·6
May	75·6	110·2	50·6
June.....	84·4	118	65
July.....	82·3	99	66
August	82·1	99·4	65·8
September	78·5	104·4	64
October	71	93	55
November	62·3	82·4	42·8
December	58·7	82·8	36·8

(1) The overcrowding will be best demonstrated by a short description of the prison dormitories, in which the convicts were confined for at least ten hours out of the twenty-four.

Prison cells.—The new prison building for 648 convicts is a one-storeyed rectangular block 344 feet long by 84 feet wide, covered by a flat roof, and divided into four ranges of cells by three longitudinal and three transverse passages. Only one of the four rows of cells has outside windows; the other three rows get light and ventilation from the passages, which are roofed over. Further, the boundary wall of the prison assists to deprive the cells of the exhilarating air of the desert.

These parallel blocks are crowded into an area of two thirds of an acre, with a passage between them only two metres wide. In the construction of the prison all general sanitary rules seem to have been disregarded. Our first visit to it was on the afternoon of May 29th, when the cells were empty, and were carefully measured by us. We first saw eighteen cells for eight men each, the dimensions of which in feet were $16{\cdot}07 \times 11{\cdot}31 \times 13{\cdot}12$. This gave twenty-two superficial feet and 298 cubic feet for each inmate. There were two small windows $1{\cdot}8 \times 2{\cdot}46$ feet, no roof opening, and one door shutting tightly like an iron safe, with a small pigeon-hole, for the warder's use.

Then came eighteen cells, each for sixteen men, and measur-

ing 33·46 × 11·31 × 13·12 feet, which gives twenty-three superficial and 310 cubic feet for each individual. In each of these were three windows opening into the corridors, of similar size to the former row of cells, a similar door and two holes in the roof, twelve inches long by eight inches wide.

Lastly, there were nine cells, each for twenty-four men, and measuring 32·97 × 16·23 × 13·12 feet, giving twenty-two superficial and 292 cubic feet per man. There were in each of these cells six windows of the same size as the others, opening into the corridors, one similar door, and two holes in the roof 12 in. × 8 inches. This gives, upon the average of all the prison cells, nearly twenty-three superficial and 301 cubic feet for each prisoner. With this may be compared the regulations for the Bombay gaols, which provide for forty superficial and 648 cubic feet for each prisoner.

But in favour of Tourah it may be remembered that the cubic space required by the Poor Law Board in England for dormitories of healthy paupers, with a separate day room, is only 300 feet.

The figures I have given for Tourah, viz. twenty-three square and 301 cubic feet per man, are based upon the construction plan for 648 men, but we know that for at least six months before the epidemic began, the convicts numbered over 900, reaching their maximum in March, when they varied from 1006 to 1024. During this overcrowding the prison officials told me they used to allow about eighty of the infirm and sick, especially those suffering from diarrhœa, to sleep in the old building used at first for workshops and afterwards for the hospital. The remainder must have been packed like sardines into the cells, and, assuming that the number of occupants was only raised from 648 to 848, the square feet would be lessened to eighteen, and the cubic space to 230 feet.[1]

In the autumn of 1886, a Commission of sanitary and prison officials was ordered to inspect the gaols of Lower Egypt. They visited twenty in all and recommended in every case that the ventilation be increased, that a raised platform be constructed

[1] The overcrowding and the underfeeding of the convicts were caused by the unfortunate condition of the finances of Egypt not permitting any adequate sum being granted to the Prisons Department, which therefore has to deal with large bodies of men for whom it is wholly unprepared.

to keep the prisoners from sleeping on the floor, that the pail system be substituted for the present latrines and cesspools, that a washing house be built in each large gaol, that the cell walls be whitewashed three times a year, and that all floors be made impermeable to damp. At the time of their inspection they found 2497 prisoners in residence, with an average of twenty-three superficial feet, and 379 cubic feet for each man or woman. The worst of the prisons as regards cubic area were Tantah with 290 feet, two gaols at Damanhour with 196 feet and 237 feet, and Zagazig with 289 feet during the day and only 174 feet at night, when 108 outdoor prisoners were distributed through the already overcrowded rooms. The Commission recommended that every inmate be given 600 cubic feet, in rooms of less than fifteen feet high, and that forty superficial feet be allowed in rooms over fifteen feet high. If carried out, this would have reduced the number of prisoners from 2497 to 1645.

(2) The ventilation of the cells was most deficient, as I have already stated, the air in them when unoccupied was very stagnant, and the roofed-in corridors between the rows of cells were disagreeably close. The cells to the naked eye were whitewashed and perfectly clean, but a disgusting human odour prevailed everywhere, especially in the corners. There were no inlets for fresh air, the one door of each cell shut very tightly, and the windows and roof openings were far too small for satisfactory outlets. The air was evidently little changed by day and became extremely vitiated at night. The cells were occupied from about 6 p.m. to 6 a.m., but the doors were ordered not to be locked till 9 p.m.

Dr. Milton and I thought it would be interesting to determine the amount of carbonic acid in the air of the cells before they were vacated by the convicts in the morning, so before daybreak on June 18th, we rode by moonlight across the desert to Tourah, arriving there at 5.15 a.m. The experiment was a chemical failure, owing to a chemist's error, and, from pressure of other work and my own subsequent indisposition, could never be repeated. At the time of our arrival it was a lovely cool morning with a delicious breeze borne straight upon the prison from the neighbouring hills and desert. The temperature in the courtyard outside the cells, as in the desert

was 72° F., but in the cells 81° F. In the hospital wards at the same hour it was 76° F.

488 convicts were still confined in the cells, but soon after our arrival, the day warders appeared from the village near by, and the bell rang for the cells to be emptied and cleaned. A horrible stench greeted us as we advanced within ten yards of the entrance door to the corridors; this had an open grating and occasionally opened to let a warder pass in or out.

Our chemical experiment was conducted in cell 45, where we found eighteen prisoners, who, we were afterwards told, belonged to the section "under observation." The stench was great, and the heat seemed oppressive, so that I found myself suffering from headache and nausea and had to go outside for fresh air. Dr. Milton, who was not affected by the odour, and I, then relieved each other every ten minutes. During one of my watches, I counted the nests of bugs in the four walls, and found more than a thousand. In the middle of the cell was a pail perfectly full of solid fæces and urine, without earth or disinfectant, and there was much urine on the ground near the door, lying in large puddles. In several other cells, containing on this day twelve and six men, were similar pools of urine an inch deep, and in at least one other cell we saw a pail full of fæcal matter. The doors of all the cells were shut and an iron bar totally prevented egress. Many of the convicts had thickly coated tongues, but we did not notice any fainting or staggering when they were brought into the fresh air. Cell 45 was a very fair one to take as a sample, because on its north aspect, whence comes the prevailing wind, was the only unroofed portion of corridor in the prison. This roof had been recently removed at our suggestion and ventilated the conservancy pails and filters of water.

One of the inmates of cell 45 complained to us of the fæcal odour from the pail; his companions sat silently on their mats with true Oriental indifference.

Overcrowding, with free ventilation, would seem to be not inconsistent with good health, and in August, 1886, I gladly availed myself of Colonel Hallam Parr's invitation to show me the Egyptian Military Prison in the Abbassiyeh suburb of Cairo. I found a collection of small rooms under one roof, the prison requirements having gradually kept pace with an

army which had been increased from 6000 to 13,000 men without a corresponding increase of budget. The prisoners numbered 128, and were mostly young recruits undergoing sentences varying from seven days to two years. The dormitories I saw gave each man about forty superficial feet and a cubic space varying from 350 to 400 feet. But each room was capitally ventilated by roof and lateral openings, and two inlet holes near the floor supplied air from the corridors, which were without roofs. The men sleep on mats and work as at Tourah, but greater attention is paid to their diet, conservancy details, and cleanliness. There was no closeness in any room or corridor, and the men, with one exception, showed a sunburnt ruddiness of face peculiar to the healthy Egyptian fellah. Before the occasion of this visit the gaoler had had two hours' notice of our inspection which he had perhaps spent in extra attention to the cleanliness of his prison.

The number of sick prisoners was only five, and the deaths during the last three years have only numbered six. It has recently been decided to raise the cubic space in this prison to 600 feet per head.[1]

[1] As an additional proof, if one were required, that overcrowding without ventilation is not enough in itself to produce typhus I may mention that while writing this paper (May, 1887) I had the opportunity of visiting unexpectedly the prison at Chalcis in Greece, which is, I imagine, one of the worst in Europe. I found an old Venetian dungeon, consisting of three semi-subterranean vaults, each with arched roof, and a barred window above a double door, and no other ventilation than a long chimney one foot square in the middle of the vault. Even this chimney was covered with wire gauze, and partly blocked by stones thrown from the top. The three vaults accommodated on the day of my visit 191 men, excluding one man in hospital. Blankets or thin mattresses were closely packed on the floor, leaving only a central walk. Each vault measured about 64 feet long, 18 broad, and 15 high, giving each prisoner on the average under twenty superficial feet, and less than 280 cubic area. (This may be compared to Tourah just before the epidemic).

At the hour of my visit the prisoners, who were pale and anæmic, had been in the airing court for six out of their seven outdoor hours, with the exception of some half-a-dozen men who were lying ill upon their blankets. But the air of the vaults was very warm and musty, and quite insufferably stagnant near the wall opposite the door and window. The annual death-rate of this prison is only 30 (say 157 per 1000), and there is no history of recent fever epidemic or of other diseases than chest complaints (pneumonia?) and rheumatism.

Adjoining the vaults was a tiny chapel with Greek pictures and holy fire. The prisoners seemed clean, happy, and contented, and on good terms with the

With regard to Tourah it is only necessary to say that after our early morning visit the 120 prisoners "under observation" were directed to sleep on mats in the courtyard, and this they continued to do very happily until they were discharged as cured.

(3) The uncleanliness to which I allude was chiefly but not wholly personal. I have stated that the cells by day looked white and clean but they evidently required renewed lime-washing for the walls and lavish disinfectants for the floors. Moreover, the mats and blankets remained rolled up in the cells all day instead of being well aired. The prisoners, both healthy and sick, were very odorous and were mostly begrimed with dirt and well covered with vermin. Many of them stated that they had not washed their bodies for one, two, three, and even eight years, and allowing for the grossest exaggeration it was evident that many months had elapsed since a bath had been administered. No water supply existed within the prison, and none was brought in for washing purposes. The water required for the kitchen and drinking filters was provided daily by convicts carrying goatskins from the Nile. Though the river was so near and the beach so convenient, being, in addition, well commanded by the negro sentries who paced the walls with loaded rifles, no bathing parade ever seems to have taken place until we cajoled the gaoler into marching the healthy men down to the river and afterwards providing them with clean clothes. This was only repeated once during the epidemic and was perhaps not approved of.

In the Bombay gaols prisoners are directed to bathe once a day in the hot weather, and "any prisoner found in a dirty state should be brought before the superintendent for punishment."

At Tourah we found a masonry bath built in the ground of the courtyard; this was always full of unchanged muddy water. There were also some fixed basins and some waterless taps in a room we used for our autopsies, and these were connected by a disused pipe and pump with the Nile. We were told that matters went well at Tourah until January, 1886,

sentries, and made no complaints worthy of attention. Their chief desire was to sell me brass whips, ivory work, and crucifixes, which they had manufactured while in prison.

then a new director was appointed, officials became negligent, and four escapes of two, one, three, and eighteen prisoners respectively took place, in addition to the dynamite explosion. Until this time the convicts used to wash daily at the taps, and they were also made to wash themselves outside the prison as they returned from their quarry work. But one day an order arrived from Cairo that in future no water should be pumped into the prison, and this seems to have been faithfully observed. The reason alleged was that the water drained into a cesspool the geography of which was unknown, and the openings into it were closed by cement. The bath-room in the hospital was a great success and the sick men at once began to beg for baths, so that lice disappeared from all the patients in less than ten days.

I was told that twenty-five wheelbarrows full of dirt and rubbish were carted out of the prison on the first day of our *régime*. With the exception of a very energetic Turkish head warder, the prison officials seldom appeared to do any work. They were perhaps demoralized by the fact that the director, three clerks, and some of the warders had contracted fever. As many of the officials lived in Cairo and were in the habit of leaving the prison from Thursday evening to Saturday morning, and as one of the clerks had died of "fever" in Cairo, it was determined that no prison employé should be allowed to leave Tourah without a medical certificate.

(4) I have already referred to the conservancy arrangements in the cells, which consisted of a urine pail of zinc, which was also used for fæcal deposit by the convicts. One pail would appear to have been insufficient, as in every cell seen by us on June 18th there was urine lying on the ground. A similar pail on the floor of the cell provided drinking-water for the night. Between the hours of sunset and 9 p.m. convicts were supposed to make use of pails in one of the corridors at the north end. During the day outdoor latrines were provided on the dry earth system.

(5) One of our first inquiries was into the dry rations supplied to the prisoners, and we were given the following items calculated in grammes: bread 900, with 300 extra for those working at the quarry; lentils 120 and rice 9, or, as an alternative, beans 120; salt 9; butter 9; onions 12.

These numbers, reduced to ounces, are compared in Table III with the dietary of Egyptian military prisons and Bombay prisons, and the temporary increase to the Tourah diet. It

Table III.

	Daily diet in ounces.								
	Bread.	Rice.	Lentils.	Salt.	Fresh vegetables.	Curry stuff.	Tamarind.	Oil or ghee.	Meat.
Tourah prisoners .	31·7	·3	4·2	·3	·4	...	...	·3	
Tourah prisoners working at quarry	42·3	·3	4·2	·3	·4	...	...	·3	
Egyptian army prisoners	27·6	2·2	2·2	·6	2·7	...	...	·4	2·2
Bombay prisoners [1]	32·4	...	5	·7	8	1	1	1	
Dr. Milton's temporary diet	42·3	4·5	4·2	·3	16	...	...	·3	5·3

was evident that though the quantity of bread was excessive, vegetables with animal and fatty matter were deficient, but the Prisons Department declined to give five ounces of meat daily, though they permitted sixteen ounces to be given twice a week. After a few days this extra ration was cut down to ten and a half ounces twice a week, the men thus getting twenty-one ounces weekly instead of thirty-five ounces as desired. The extra vegetable ration was given but irregularly.

Contrary to expectation there was no scurvy in the prison, although scorbutic diseases have lately broken out in the Egyptian army in the field, where a due supply of vegetables could not be provided.

In the Tourah diet the quality of the bread was all-important. To the naked eye it was evident that it had been insufficiently kneaded and baked, and was adulterated with some vegetable substance. Microscopical examination at the Government Laboratory showed that it contained mineral

[1] The Bombay diet allows 24 oz. of wheat or other flour of the "second quality," and this should produce about 32 oz. of bread. It is directed in India that the grain be twice ground and sifted to prevent intestinal irritation, and that the rejected matter be removed from the gaol and sold as bran.

particles, and an appreciable amount of straw and bran. The chemist also reported that the flour was of mixed varieties, and was deficient in nutritive gluten.

The only remaining remark to make about the diet is that at this time the store magazines were not properly supervised, and a few days after our arrival at Tourah it was discovered that 2212 lbs. of bread besides other provisions had lately been stolen by the officials of the prison.

I can give no opinion about the work in the quarries required of all the able-bodied convicts, because I never saw them actually in the quarry, but I can at least testify that the greater number of them looked unfit for any prolonged effort whatsoever. Their hours of work, as I have said, were reduced after our arrival from eight to three hours daily.

The prison contract with the Public Works Department required them to supply 530 tons of stone on the Nile bank every day except Friday. The railway trucks were taken up the hill by mules, and when filled by the convicts ran down a narrow gauge line to the river.

Diagnosis of the Tourah Epidemic.

From more than 300 patients diagnosed by myself, and from cross-examining the native doctor who was in charge of the sick before our arrival, I think it is possible to make a fairly accurate analysis of all the patients. Our native colleague gave a very good clinical description of the cases he had seen. He found himself on his first arrival confronted with 237 patients, suffering from fever, jaundice, vomiting, thickly coated tongue, and many of them relapsing after apparent convalescence. He also told us that the convicts were too dirty for him to be able to see the typhus eruption, and that about 10 per cent. of them suffered from cough. Some of his patients died at the end of the first week with great fever, some at the end of the second week with diarrhœa, others in the "typhoid state," a few of dysentery, and a dozen cases of acute pneumonia with marked dulness and rusty sputa. No notes were taken, no autopsies were made, but his account of the commencement of the epidemic is exactly similar to the

latter half which he and we watched together. I think, therefore, we are justified in assuming that the diseases consisted roughly of one half relapsing, one sixth diarrhœa and dysentery, one sixth simple continued fever and debility, one twelfth typhus,[1] and one twelfth lung cases.

I cannot refer to our colleague Abdul Effendi without paying a tribute to his conscientious and intelligent care of the patients from the moment of our arrival to the close of the epidemic. He was the one hard-working official on the spot,[2] and the only Mussulman who insisted upon keeping the Fast of Ramadan in all its strictness. From about 2 a.m. to 7 p.m. he allowed no food, drink, or cigarette to touch his lips, and during these thirty days he was always in the hospital for about seven hours daily. The fast was in the month of June, and the temperature in the shade was often above 100°, yet he succeeded in keeping his health throughout, and was always cheerful and willing to work.

Typhus at Tourah.

During my six weeks' work at Tourah I took rough notes of as many cases as the time permitted, and of the 363 bed-tickets now before me, I find that I have more or less complete notes of thirty-two cases of typhus. How many of the 215 deaths which occurred between April 1st and the starting of the new *régime* were due to typhus it is impossible to say, but Abdul Effendi told us that several cases had died comatose at the end of the second week, resembling the patients whom we afterwards taught him to diagnose as typhus. Of the 32 cases, 20 were found in the hospital when we took it over, most of them were in the last stage of the disease, and 15 of these died, most of them within a week of our arrival. Of the 5 which recovered, one was convalescent when we first

[1] One of the last recorded outbreaks of "gaol fever" was at Strasburg in 1854 (Forget), and Hirsch mentions instances in 1867 at Vienna, Tarnopol, and Constantinople, while Murchison (p. 60) tells of typhus caused by underfeeding and overcrowding in the prisons of the Punjaub in 1869.

[2] Both Dr. Milton and I had all our ordinary duties to perform during this epidemic, and could only spare a limited number of hours daily to the prisoners.

saw him, except for a huge bedsore on his back four inches square, which took two months to heal. Of my remaining 12 cases 6 died; 8 were admitted during the latter half of May, and the other 4 upon June 1st, 3rd, 7th, and 19th, after which date there were no further cases of typhus. The improvement in the death-rate by 25 per cent., and in part the cessation of the disease, were chiefly due to the increased supply of fresh air.

Age.—The patients in this epidemic were of course all male adults, but as no Egyptian ever knows his own age, it is impossible to give any record under this heading. The prisoners varied apparently from twenty to sixty years of life, and our patients of all diseases ranged usually from twenty to forty.

Occupation.—Among 15 of the later cases, in which the man's work was specified, I found 7 from the quarry, 3 carpenters, 2 nurses, 1 each from the lime-burners, tinsmiths, and barbers. Neither of the nurses was in special attendance on typhus patients, one of them coming from the admission ward; both recovered. No typhus to my knowledge occurred among the prison officials, though I shall afterwards show that many of them contracted relapsing. None of the prisoners engaged in washing the clothes contracted the fever, which may have been due to the fact that the laundry-work was all done in the open air after disinfection by steam. I was informed that previous to our arrival, while the sick were overcrowded and unwashed, some attendants had caught typhus and had died of the disease.

Eruption.—In our brown patients there was a general dusky flush over the whole face, and this symptom, together with a very dry tongue, parched lips, and injected conjunctivæ at once led us to suspect typhus. The patients varied in colour as in race from the nearly white Circassian, through many shades of yellow and brown, to the well-blacked negro. The recognition of the eruption depended partly upon the care and experience of the observer, but also upon the colour of the convict. I examined six black and brown-black men daily during life, and also after death, without being able to discover any sign of petechiæ, but in twenty-five others a typical eruption was to be found if careful search were made, after a pre-

liminary bath, and after excluding the various syphilitic and other scars with which the men's bodies were freely marked. Fortunately, three white men enabled us to show the eruption well to all native doctors who visited the prison, none of whom had ever seen it before. In these cases the preliminary dirty pink spots faded on pressure during the first day, and then changed into dark brown and livid petechiæ unaltered by pressure. Traces of the later eruption when present during life were always to be seen at the autopsy of fatal cases. Yellow sudamina with blocked-up secretion were seen in several cases, especially on the nose and face. Perspiration was only present in moribund patients.

In two dying men I noticed that the sweat left a white crystalline efflorescence upon the eyelids and face, similar to that recorded by Murchison (3rd ed., p. 137) and Barrallier. In my cases it was supposed by the natives that the comatose men had procured some white plaster from the wall in order to irritate the conjunctivæ. This is a favourite trick among Egyptian malingerers, but would of course have been impossible here.

Temperature.—In six cases the fever rose to 105° or above it during the first week, and the maximum 105·8° was twice reached on the afternoon of the second day in a very bad case, and of the eighth day in a fatal case. In cases which did not die at the end of the second week, the temperature usually fell on the fourteenth day, and then remained below 98° for about ten days. In exceptional cases the critical fall took place on the tenth, thirteenth, fifteenth, and sixteenth days.

Odour.—The characteristic smell pervaded the wards until we removed the typhus patients upstairs and gave them extra cubic space. At my daily visit I more than once recognised the presence of a typhus case among the undiagnosed fevers by the penetrating odour. I do not recognise it as being exactly like any of the offensive smells to which I have seen it compared, but it seemed to me to be not unlike a cupboard full of well-blacked boots. The first day I visited Tourah I wore cloth clothes and rode for two hours in the desert after leaving the prison, yet on reaching home I was obliged to expose these clothes to the air to rid them of the stench.

After this I invariably wore white clothes which could be washed daily. Dr. Milton also once going straight from these typhus wards to a meeting of doctors in Cairo was accused by them of having transported the odour. After making post-mortem notes I used to carry away the bed-tickets of the dead patients, and found that they caused my writing-room in Cairo to smell unless I exposed them previously to the sun. They still smelt faintly three months after exposure to the poison.[1]

Pulse.—The pulse during the fever varied from 104 to 144 and was most often 120 or 132. I noticed no cases of dicrotism, but the impulse and first sound of the heart were always weak, and in the second week entirely absent in most cases.

Hypostatic congestion of the lungs, usually without cough, and always without expectoration, was present in every case.

The *tongue* from the first day of admission to the end of the febrile period, when it became clean and moist at the edge, was always dry and gradually became more dry and more brown. Even before it became crusted, I noticed that it could not be protruded; it lay curled up with the tip apparently glued to the floor of the mouth, so that although the patient retained intrinsic muscular control he could not advance it farther than the teeth. In dying patients the tongue was tremulous, with a moist foul coating outside the black stinking crust. The feeling of thirst seemed overcome by stupor, but all but the comatose drank greedily of any liquid offered to them.

Vomiting I only saw in Case 1. The abdomen was invariably flat or concave, all the patients being thin before the illness. Tenderness at the liver's edge without pain was often present, and more rarely tenderness of spleen without enlargement. Constipation was noted in nearly every case when first admitted, and diarrhœa during the fever was present in only one case, a fatal one. This freedom from diarrhœa is noteworthy, because our relapsing patients often suffered from it, and we had under treatment sixty-three men with diarrhœa and dysentery, besides several others prescribed for as out-

[1] John Howard, it is said, could not bear this stench in his clothes after visiting gaols, and was obliged to travel on horseback instead of in a post-chaise. Further, he had to expose the leaves of his pocket-book to the heat of a fire.

patients. Headache, giddiness, and general pains were the prominent symptoms which caused a man to proclaim his commencing fever, but these were all much less severe in typhus than in relapsing.

Delirium was noted in every case except two, and was very probably present at night in those two. At the end of the first week the mental condition became blunted, men hesitated to protrude their tongues, and later on, forgot to retract them until they were shouted at, and during the whole of the second week, though apparently rational by day, they were unduly excited or stupid when addressed. In several cases the stupor remained for the first three days of convalescence. The delirium was always low and muttering, never busy or maniacal. Somnolence, lethargy, semi-coma, and complete coma without convulsions were the record of our cases, which I have already shown were all sufficiently severe. The evident prostration of the individual succeeded by dorsal decubitus was almost enough in itself to diagnose the two fevers, for relapsing patients sat cross-legged on their beds, groaning with pain, even with a temperature of 105°. There was no retention of urine, and involuntary passage of urine and liquid fæces occurred only in the comatose. Subsultus tendinum was noted in all bad cases.

The conjunctivæ were much injected from the commencement to the end of the fever period, and added to the parched burnt-up look of the patients. In three fourths of the cases noted the pupils became contracted after the tenth day, but in only one case did I see the "pinhole pupil." Photophobia and hyperæsthesia of the skin were present in one man, and epistaxis in none. Our patients took the disease with Egyptian apathy, and seldom complained of anything.

Complications.—There were no cases of scurvy, erysipelas, pyæmia, or gangrene. Ulceration of one or both corneæ was present in several fatal cases and in one which recovered, but it must be remembered that in Egypt all patients of this rank of life have suffered from previous granular ophthalmia if not from corneal ulcers. Slight bedsores were present, either on the sacrum or hip, in six fatal cases, and one which lived, besides the large sore in a convalescent already referred to. In one of these fatal cases there was also a small sloughing sore upon the left ankle caused by the iron chain. In the case which

lived there was in addition a perinæal abscess and inflammatory thickening for some days about the lymphatics of the left groin, but without bubo.

Bronchitis was noted in one fatal case, and in two which did well. This was in addition to the hypostatic congestion invariably present. There was no case of true pneumonia.

Diarrhœa was present in two fatal cases, and in one which recovered, and dysentery occurred in the same proportion, one of the fatal cases suffering also from hæmatemesis. I fancied at the time that this dysentery was due to the milk becoming sour in consequence of the extreme heat, which at last forced us to employ salicylate of soda to keep it fresh a few hours.

Case 1. *Typhus; hæmatemesis; death from dysentery on twenty-seventh day.*—A white carpenter, æt. 30, was admitted on the sixth day from the patients under observation. I saw him first on the seventh day, when he had well-marked eruption on his belly, chest, and arms; tongue very dry, red; bowels constipated; conjunctivæ injected. Temp. 100·4°, after cold bath, pulse 120; respirations 30; slight cough; no pain anywhere. 10th day: Temp. 102·6°, and has not been higher; pulse 132, respirations 24; eruption fading; tongue dry, brown, clean; conjunctivæ injected. 13th day: Temp. fallen to 100·4°, pulse 120; eruption very faint; tongue clean; says he is quite well and is very anxious to get out of the typhus ward, where all his neighbours are comatose. 15th day: Temp. 99·5°; convalescent. 19th day: Feels strong, and asks to be shaved. 21st day: Had diarrhœa yesterday, and now distinct dysentery, vomits blood; tongue rough, red brown, very dry. Temp. 104·2°, pulse 132; quite prostrate. 22nd day: Temp. 103·1°, pulse 114; vomiting continues, but there is very little blood, no cough. 23rd: Temp. 100·4°; tongue dry, red, cracked; bowels said to act many times (? 30) by the native in charge. 24th day: Temp. 99·7°; patient sensible, but motions passed unconsciously; tongue red brown. 26th day: No fever; pulse 144; much emaciation; bowels have acted nine times since yesterday, motions brown, liquid, dysenteric. 27th day: Death at noon. I examined the body two hours afterwards, and found none of the ordinary signs of typhus. The blood was clotted normally, and the heart was natural and contained

firm clot. Hypostatic congestion of lungs. Spleen and kidneys healthy. Liver congested. Small gut normal. Large gut was thickened and contracted, especially the rectum; much recent congestion, great prominence of the solitary glands of colon and rectum. No ulcers near ileo-cæcal valve.

Case 2. *Typhus; death from dysentery on thirty-eighth day.*—A dark-brown Egyptian from the quarries, æt. about 35, was admitted apparently on the fifth day of illness, and was first seen by me on the seventh day, when his temperature was 102·6°, pulse 120. 11th day: Temp. reached its maximum 103°, pulse 120; tongue dry, brown, stupor since yesterday. 14th day: Temp. fell from 102·2° yesterday to 97·9°; pulse 102; tongue dry red; stupor continues; minute black petechiæ on trunk. 18th day: Temp. always subnormal, pulse 76. Doing well, but still semi-unconscious; tongue dry, clean. 21st day: Temp. normal; tongue clean, moist; conscious; feels hungry. 29th day: Diarrhœa first reported, said to be twenty motions. Tenesmus, mucus and bloody stools continued unchecked till death, in spite of careful diet, ipecacuanha, bismuth, opium, sulphate of copper, sulphuric acid, simaruba, &c.

June 15th, thirty-eighth day.—Post-mortem six hours after. Much emaciation, no bedsore, muscles red and healthy, no ecchymoses, blood clotted, rather dark in colour, lower halves of lung œdematous with slight hypostatic congestion, upper halves partly collapsed and airless. Heart firm, contracted, contains small clots, valves healthy. Liver congested, gall normal. Spleen normal. Kidneys congested. Mesenteric glands much enlarged. Pink congestion in small intestines everywhere, no ulcers. Solitary glands of great intestine very prominent. Many small dysenteric ulcers, white patches all through the rectum, and one large ecchymosis. Brain not examined.

Case 3. *Typhus; dysentery on thirty-sixth day; recovery.*—A white Turkish carpenter, æt. 40, was admitted on the sixth day. Temp. 102·2°. 7th day: Temp. 101·2°, pulse 120; conjunctivæ injected; says he has pain everywhere; tongue very dry; constipation three days; very good eruption on axilla fronts, belly and back; lungs resonant; slight cough; liver and spleen not enlarged or tender. 9th day: Temp.

102·2°, after a bath to which he walked; pulse 126; tongue dry brown. 11th day: Temp. 101·9°, pulse 132. Eruption still clearly seen. Mind stupid since yesterday. 13th day: Temp. 100°, pulse 126; tongue coated white, no longer dry; bedsore commencing. 15th day: Temp. 96·8°; eruption fading; stupid; bedsore no worse; pupils small. 18th day: Sensible, sitting up; pupils small; boils on forehead. 25th day: Sleepless at night, otherwise well. 29th day: Temp. normal; no cough; sleeps well; transferred to convalescent tent in the courtyard. 33rd day: Quite well yesterday, but says that the sun has touched him to-day. Temp. 103·6°, pulse 150; tongue clean, moist; no pain, slightly giddy, sleeps well, no diarrhœa. 34th day: Temp. 103·2°, pulse 150; tongue quite dry, thirst, headache (sun fever). 36th day: Temp 97·8°, pulse 126; eight dysenteric motions. 37th day: Temp. 97·8°, pulse 98; tongue dry, white; dysentery continues, no pain. 39th day: Temp. 98·6°; 25 (?) dysenteric stools.

The dysentery then gradually improved, and he left the hospital on July 17th, after sixty-four days' illness.

Buboes.—I have already mentioned a case of swelling of inguinal glands without suppuration, and I must now record three cases (two fatal) of parotid buboes unaccompanied by swellings elsewhere.

In one case, which I never saw alive, there was a bag of pus in each parotid gland. In the second case, in which the fever rose to 104·8° on the fourth day and 104·9° on the eighth day, and the spleen was daily noted to be tender to the touch, a large parotid abscess suddenly appeared on the eleventh day, the patient then being semi-comatose. The note on the twelfth day was: Temp. 95·4° a.m., pulse 78, very feeble; pupils small; tongue very dry, brown; voice very husky; does not like his parotid handled; incised parotid but no pus. 13th day: Temp. 95° a.m., comatose; no pus. 14th day: Temp. 94·6° a.m.; pus in parotid. 15th day: Pulse imperceptible; respiration 30; mouth open; coma; tongue very dry, drown; eyes much sunken, pupils small, conjunctivæ insensitive; no distinct eruption but ecchymoses on left arm; lungs resonant everywhere, breathing well heard and not tubular; dying. Sixteen hours after death I examined the body. There was

no eruption, but the dependent parts were unduly livid. The blood dark, scanty, and very liquid. Lungs deeply congested, purple throughout. Heart flabby, no clot, valves normal. Liver healthy but very soft, congested. Spleen 1½ size, firm, congested. Kidneys congested. Brain slightly congested and small excess of serum; membranes adherent. Parotid converted into a large burrowing abscess.

In the third case of parotid bubo the symptom was noted four days before pus appeared, and then two counter-openings had subsequently to be made which healed a month later. I saw also one case of submaxillary abscess which appeared in a semi-comatose patient five days after the temperature had become normal; he died comatose with a bedsore on the right hip seven days later. These buboes formed with great rapidity and were ushered in by great tension, pain, and tenderness, with inability to open the mouth or protrude the tongue.

Jaundice.—Murchison (p. 210) says that this complication is extremely rare in typhus, but he records twenty-one cases, fifteen of which were seen by himself. The following brief notes of my only case are permissible. I several times thought that I had discovered jaundice, especially in black men with yellowish conjunctivæ, but in no other case was the diagnosis confirmed by finding bile-pigment in the urine.

Case 4. *Typhus; death on seventh day; jaundice.*—A brown-coloured Egyptian was admitted on May 24th and stated that he had only been ill for two previous days. If this was accurate he was the only individual I saw who died or recovered at the end of the first week. 3rd day: Temp. 103·6°, pulse 132; complains of headache and giddiness. 4th day: Temp. 103·6°, pulse 140; no eruption seen; no spirilla in blood. 5th day: Temp. 104°, pulse 138, resp. 48; tongue tremulous, very dry; bowels have acted five times; eruption present; mental condition very stupid. 6th day: Temp. 100° (?), resp. 48; tongue tremulous, dry, cleaner; pupils contracted; eruption now on back; urine passed involuntarily. 7th day: Temp. 102·2°; distinct jaundice; bile in urine; died 3.30 p.m.

May 29th.—Post-mortem twenty-three hours after. Marked jaundice tinge of whole body and of bones and other white

tissues to a faint degree. Eruption present very distinctly, but not well shown on brown skin. The back and dependent parts of neck and arms very much blood-stained. No rigor mortis. Muscles soft and flabby. Old pleuritic adhesions. Lungs dark purple everywhere from extreme hypostatic congestion, looking almost like spleen when cut open; pieces float readily. Heart contains no clot, blood very liquid and very dark; muscle very flabby. Liver almost normal colour, soft, and friable. No blocking of bile-ducts. Hyperæmia around the cells; commencing to be emphysematous, but this, perhaps, is due to decomposition. Spleen double size, quite liquid when opened; intense congestion. Kidneys soft, much congested. Brain and membranes congested. No excess of fluid in ventricles.

Dr. Cayley (Murchison, 3rd ed., p. 342) says that many instances have been observed in Great Britain and on the Continent of relapsing fever succeeding typhus in the same patient during an epidemic, and in support of this I bring forward two cases, only regretting that my written notes are but scanty. Neither of the cases had either disease very severely, and as they were in hospital at the same time they drew from me much interest and consideration.

It must be remembered that in this Tourah epidemic relapsing fever attacked many more patients than typhus but that the proportion of typhus was greater at the commencement than towards the close of the epidemic. This is not the general experience of similar mixed epidemics, and may possibly account for Cases 5 and 6 instead of the more common appearance of typhus after relapsing when both diseases occur in one individual.

Case 5. *Typhus; parotitis; Relapsing; recovery.*—A light-brown limekiln worker; was first seen by me on May 18th, which, he said, was the fifth day of his illness. Temp. 100·4° pulse 90; no eruption discovered; tongue dry, furred; headache. For the next five days his fever varied from 103° to 104°, and he grew steadily worse, but remained conscious. 11th day: Temp. 104°, pulse 126; headache; groaning; roused with difficulty, and says he has pain all over; tongue

dry, red, fissured; injected conjunctivæ; eruption well seen on chest. 12th day: Temp. 102·2° a.m. and p.m., pulse 124. Utterly prostrate; conscious, but inclined to be delirious; forgets to shut his mouth; tongue dry, red, fissured; well-marked eruption on chest. Spleen and liver distinctly felt below ribs; no cough; when roused says he has general pain and sensation of heat (note by Dr. Milton). 13th day: Temp. 102·2°, pulse 120; worse than yesterday; inflammation of parotid gland; incision, no pus (Dr. Milton). 14th day: Temp. 100·4°; tongue dry, becoming red, no desquamation. 10th day: Temp. normal for five days, pulse 84; says he is quite well and seems so. 25th day: Convalescent; asked leave to move his bed away from a neighbouring patient, who was dying of typhus and smelt horribly. 26th day: Temp. 104°, pulse 108, resp. 30; thirst; tongue moist; rigor; Says he caught cold this morning from sleeping in a draught from the window. 27th day: Temp. 101·2°, pulse 138; tongue moist, red, rough; no cough; no pneumonia. 28th day: Temp. 102·6° a.m., 103·3° p.m., pulse 125; tongue clean; no pains. *Well-marked spirochæta in blood.* Lungs healthy. 28th day: Temp. 102·2°, pulse 120; no pain; tongue very large, red, rough. Transferred to relapsing ward. 30th day: Temp. 104·4°, pulse 120; same as yesterday. 31st day: Temp. 100°, pulse 108; sweating; better. 33rd day: Temp. 101·5°, pulse 96; sweating much; tongue better. 35th day: Temp. 99·7°; slight pain in muscles. 39th day: Temp. 98·2°; pain in chest; tongue normal. The temperature then remained normal till he was discharged on July 10th, his fifty-eighth day.

This case when first seen resembled relapsing very much, but the presence of the eruption decided the diagnosis in favour of typhus. Moreover, the date and the character of the eruption were not like those exceptional cases of relapsing in which roseolar spots are said to occur on the third day, or immediately before the crisis of the first paroxysm (Murchison, p. 349).

Case 6. *Typhus; bronchitis; Relapsing; recovery.*—An Egyptian from the quarries was first seen on May 15th, and we were then told that he had been ill for five days. He was

delirious, with a typical typhus eruption. Temp. 104°, pulse 124. 6th day: Temp. 104·4°, pulse 120; tongue very dry; cough; white bronchitic sputa; impaired percussion resonance at both bases; good breath-sounds; no friction (Dr. Milton). 7th day: Temp. 102·2°, pulse 120. 8th day: Temp. 102·2° a.m., 103·3° p.m., pulse 128, resp. 40; tongue dry, glazed. 9th day: Temp. 102·2°; no spirochæte in blood. 11th day: Temp. 101·5°, pulse 126; tongue dry, brown; percussion resonance still impaired; partly conscious, and says he is better. 12th day; Temp. 100·8°, pulse 120, resp. 36; tongue dry red; coughs up bronchitic sputa; eruption well seen on chest. 13th day: Temp. 102·2°, pulse 120; tongue very dry, but cleaning; conscious and says he is doing well; eruption still. 14th day: Temp. 102·2° a.m., 100·8° p.m., pulse 114; much cough. 15th day: Temp. 99·4°; tongue moist. 17th day: Temp. 98·6°; tongue clear, moist; less cough; much better, and says he is quite well. 19th day: Temp. 97·6°; convalescing. 23rd day: Temp. 99·2°, pulse 114; tongue clean, moist; sitting up; slight headache. 28th day: Temp. 101·2°, pulse 138; giddy; pains everywhere, especially in the head. 30th day: Temp. 100·4°; symptoms continue; ? relapsing fever. 31st day: Temp. 103·6°; very giddy; headache worse; tongue moist, pale; *blood contains spirochæta*. 32nd day: Temp. 104°. 33rd day: Temp. 96·4°; evident crisis. Bowels acted four times after Epsom salts. The temperature then remained subnormal for nine days. 43rd day: Temp. 105·1° (the highest record during the whole illness), pulse 120; evident relapse; giddiness and headache again; tongue moist, clean; bowels regular; no cough. 44th day: Temp. 103·3°, pulse 120; giddy; slight pains. 45th day: Temp. 101·1°; slight diarrhœa. 46th day: Temp. 102·6°. 47th day: Temp. 97·2°; second crisis. The temperature after this remained subnormal and normal until the man was discharged on July 17th.

Rate of mortality.—Of our 32 typhus patients 21 died, or 65·6 per cent. This compares unfavourably with the epidemic in the hulks of Toulon in 1855, where a similar condition of mental depression existed, and the death-rate of 921 men above thirty years of age was 37·5 per cent.[1] But

[1] Murchison, p. 238.

our mortality fell to 50 per cent. when we supplied the sick with sufficient aeration, though we could not prevent the pulmonary hypostasis which poisoned the blood of all our fatal cases.

Post-mortem appearances.—I have rough notes of nineteen autopsies, including one by Dr. Milton, but of these Cases 1 and 2 must be omitted as being deaths from dysentery during convalescence. The bodies were examined at periods varying from three to twenty-three hours after death, the average interval being fifteen hours. But in spite of this putrefaction had commenced in the later cases, though this was not noticeable in deaths from other diseases. Rigor mortis was absent or ill-developed in all cases.

Eruption was present on many corpses, generally in the form of petechiæ upon the dependent parts of trunk and limbs, and here there was also much greater and earlier discolouration than in other diseases.

The *muscles* were dark red or brownish, and very flabby. It generally happened that autopsies from other patients were going on at the same time, which rendered a comparison of the different structures very easy. In two cases I saw well-marked ecchymoses stretching from the umbilicus to pubes in the rectus muscle.

The *small intestines* were sometimes congested in patches, and in one case there were several petechiæ. There was no disease of Peyer's patches or the solitary glands. The large intestines were much congested in two cases.

The *spleen* was normal in one third of the cases, and congested and double its weight in rather more than a third. In two other cases it was reduced to a pulp, which ran out when the capsule was cut; in two others the enlargement was evidently old, and in another there were gummata besides recent congestion.

The *liver* was congested in three fourths of my cases, and only noted normal in one man. In two cases it was pale, flabby, and very friable, and in one of these the gall-bladder contained fluid and much orange-red granular sand. Excluding doubtful cases in which the condition may have been due to decomposition there was one good instance of Frerich's "emphysema of the liver," in which pieces of the organ

floated in water. The external colour was a greenish brown, and on cutting it open the lobules were seen to be very distinct, and the liver substance was spongy and filled with air, crepitating on pressure like a lung, and emitting a little œdematous fluid full of air-bubbles.

The *heart* in more than half the cases was soft, very flabby, and contained no clot, but in three cases the muscular tissue was apparently normal, and in two others the heart contained a little soft black clot. In every case except one the blood was scanty, very dark coloured, and perfectly liquid, without trace of clot, and by this symptom alone the assistants who prepared the autopsies soon learnt to distinguish the typhus corpses.

The *bronchi* had their lining membranes coloured bright red, and were partly filled with frothy tenacious mucus.

The *lungs* were not healthy in any case. In two instances there were old pleuritic adhesions; in three there were well-marked petechiæ generally on the pleural coating at the base, and in two men there was evidence of broncho-pneumonia. At every autopsy there was much hypostatic congestion, so that the portions of lung most affected did not crepitate, but my notes speak of only two cases in which pieces sank in water. The dependent parts of the lungs were affected to such an extent that the lower halves of both lungs when cut open were smooth and not granular, of chocolate colour, and emitted on pressure a dark-coloured serum containing almost no air. With this condition there was much œdema, and sometimes emphysema in the upper lobes, but in at least three cases the upper halves were apparently collapsed and airless, so that it was difficult to understand how the individual could have breathed.

The *brain membranes* showed slight congestion, and were fairly adherent to the brain, though they could be stripped off without removing cerebral substance. The fluid in the lateral ventricles was not accurately measured, but never seemed to exceed half a drachm; it was transparent and without colour. Upon cutting the white brain matter an unusual number of bloody points was nearly always seen. The ganglia of the cervical sympathetic were not examined.

The *kidneys* were congested in three fourths of the cases,

and in one of these was a large ecchymosis. The capsules separated easily and the surfaces were smooth. In three men the kidneys were noted as healthy, and in a fourth the organs were large, pale, smooth, with capsules non-adherent, and cortical substance hypertrophied.

Relapsing Fever in Egypt.

At the close of the twelfth century, when Richard Cœur de Lion of England and Philip II of France had made a temporary alliance to try and wrest Jerusalem from the great Saladin, then Sultan of Egypt, Damascus, and Aleppo, there travelled towards Cairo in pursuit of medical knowledge an Arabian physician, Abd-el-Latif, of Bagdad. After acquiring all that the wise doctors of Bagdad, Mosul, Damascus, and Jerusalem could teach him, and imparting his own precepts on medicine and the allied sciences to the students of those towns, he attached himself to Saladin, who, although engaged day and night in defending Jerusalem, found time to surround himself with learned men, and occasionally take part in their scientific discussions. After much fighting, Acre and Ascalon fell into the hands of the Christians, and in 1192 Saladin was not sorry to conclude a truce. The next year he caught a fever, was bled by one of Abd-el-Latif's ignorant colleagues, and died before the fourteenth day of the disease. Abd-el-Latif retained his pension of 100 gold pieces a month and settled for ten years in Cairo, where he studied and taught medicine in the Azhar College, which is still the principal university of the East.

The record of his observations in Egypt is of the highest interest, but he appears to have found other subjects more fascinating than pure medicine. He stated[1] that in winter and spring, when the Nile is low, the natives of Egypt suffered from diseases occasioned by bilious and phlegmatic humours; that pure bilious diseases were rare, but more often phlegmatic, even in the young and in those of sanguine temperament; and that such complaints rarely proved fatal. The words which follow are still true to-day:—"Acute diseases causing sudden

[1] 'Relation de l'Egypte,' translated by Baron de Sacy, Paris, 1810, p. 4.

death are rare, but most of the healthy natives are indolent, careless, and of faded, livid complexion ; it is very rare to meet people with a bright ruddy tint, and most of the children are thin, miserable, and pale, so that it is only after the twentieth year that the men develop their strength and good looks." In the year 1201 A.D., Egypt was cursed with a Nile so low that the water, which generally flowed at the rate of three miles an hour, became green and stinking, and the river gauge registered the lowest rise on record.

Abd-el-Latif was then living in Cairo, and described the horrors of the famine which ensued with circumstantial details which it is impossible to disbelieve. Excluding entirely all his hearsay reports, he saw, himself, some most horrible outrages, unbridled lust, murder, and cannibalism. So many children were roasted and eaten in Cairo that the Wali gave orders that all persons caught with human flesh were to be burnt alive. Many were so burnt, including thirty women who confessed to having eaten many children, and the day after these public burnt sacrifices it was found that the charred remains had been eaten by the neighbours during the night. Many children were devoured by their relatives, who excused themselves by saying that it was preferable to eat their own flesh and blood than to let it be consumed by strangers. Several young girls were sold or given away into slavery by their parents, after having subsisted miserably for a time upon carcasses human corpses, dogs, and filth of all kinds. There were several instances of victims being kidnapped in the streets, and two of the doctors who attended Abd-el-Latif's discourses narrowly escaped falling into the hands of hungry cannibals who had lured them abroad at night on the plea of seeing patients. The historian says that everyone's feelings became blunted, the horrible taste for human food grew apace, and even respectable, well-conducted people, who first tasted the food by accident, became addicted to the habit.

Cairo and the large town now called " Old Cairo " became almost deserted of people, and hundreds of dead were removed daily, and left to rot outside the walls. The towns and large villages of the Delta suffered quite as badly, so that out of a population of 10,000 only a few inhabitants were left, and in the more remote districts the only signs of life were the wolves

and hyænas feeding upon human remains. The natives of Egypt naturally fled in thousands from the country, and the desert route to Syria became strewn with the corpses of the fugitives. As an example of how the population was reduced, he says that the number of matting makers in "Old Cairo" was reduced from 900 to fifteen, and in the same year (1202) poultry was so scarce that a hen bought in Syria for sixty gold pieces was sold for 800 to the owners of a large egg-hatching establishment in Cairo. It is not surprising that a terrible plague should have broken out in several towns among the miserable survivors, and on a single Friday in 1202, 700 people are said[1] to have been buried in Alexandria, although more than 20,000 people had already fled from the town. This pestilence was succeeded by a prolonged earthquake, after which a high Nile came and peace and prosperity were gradually restored, but "Old Cairo" as a town was never repopulated.

The rarity of Abd-el-Latif's writings has, I hope, justified me in giving a condensed account of the calamities of two very remarkable years in Egypt, but it would be unreasonable to expect him to have given any diagnostic account of the fever which accompanied the famine, for it was not until the beginning of the eighteenth century that the first authentic records of relapsing fever in Europe were written.[2]

In August, 1797, Bruant, of the French army in Cairo, wrote of a bilious fever, with relapses, three days' delirium, and dysentery; and in November, 1798, this was further noticed by his colleague, Barbès, who says that the jaundice was like that of yellow fever in America.[3]

Under the heading of yellow fever complicating gunshot

[1] Abd-el-Latif, p. 413.

[2] Abd-el-Latif had become acquainted with anatomy through Galen's writings of the second century translated into Arabic, and he remembers Galen's advice to dissect a human or, failing that, a monkey's skeleton. Accordingly we find him (p. 361) demonstrating the bones of a man's skeleton, the flesh of which had been stripped off during the famine, and later on (p. 418) he and his class were fortunate enough to discover a hill composed of human remains. Here he examined 200 skulls, and found that the adult lower jaw was invariably one bone instead of two joined at the chin, and he corrects Galen's assertion that the sacrum consisted of three bones.

[3] 'Mémoires sur l'Egypte,' Paris, 1802, ii, pp. 326, 376.

wounds[1] Larrey describes a fever which succeeded the siege of Cairo in the spring of 1800 which was so sudden, so contagious, and so fatal to the wounded that the French soldiers believed the bullets must have been poisonous. 260 wounded out of about 600 attacked died at this time, but the epidemic was stayed directly Cairo surrendered and the army was relieved from its privations and unhealthy surroundings. The chief symptoms were jaundice, fever, thirst, pain in head and right hypochondrium, epistaxis, vomiting of bile, occasional delirium, and a marked crisis, sometimes followed by a relapse. When the city had fallen the besieged Turks were found to be also suffering from the disease.

Partly because yellow fever has always been quite unknown in Egypt, I think it is fair to assume that this heavy mortality was caused by hospital gangrene complicated by relapsing and probably typhus.

Pruner[2] writes of bilious fever as occurring often in the middle of the summer in Cairo. This fever was attended by a small mortality, and ended suddenly on the fifth or seventh day, but it was liable to relapses and sometimes lasted altogether twenty-two days.

In 1836 Veit also described relapsing fever in Cairo, and in later years Russegger and Hartmann[3] have written of bilious typhoid and the famine fever as being often epidemic in the poorest districts of Egypt and Nubia. But to Griesinger[4] in 1851 was due the credit of having first correctly differentiated this fever together with its sub-variety of "bilious typhoid," so that the latter is still spoken of in Cairo as "Griesinger's disease."

Hirsch[5] believes that both fevers are "special modifications of one and the same morbid process," and the writer willingly adopts this view, which is confirmed by the spirillum having been found by Moschutkowsky in the blood of bilious typhoid patients, and by this spirillum producing in its turn relapsing fever when inoculated into the circulation of healthy men.

[1] 'Description de l'Egypte,' Paris, 1823, 2nd ed., xiii, p. 150; Proust, 'Traité d'Hygiène,' Paris, 1881, 2nd ed., p. 797.

[2] 'Topographie Médicale du Caire,' Munich, 1847, p. 99.

[3] 'Les peuples de l'Afrique,' Paris, 1884, 2nd ed., p. 243.

[4] 'Maladies Infectieuses,' Paris, 1868.

[5] 'Geographical and Historical Pathology,' London, 1883, vol. i.

Griesinger saw 101 cases of bilious typhoid, which, he says, occurred as an epidemic in limited districts in Egypt during winter and spring. He believed strongly in its treatment by quinine.

His cases, as he says himself,[1] were mixed with typhus patients, and he talks of petechiæ but no roseola being present in one fourth of the bilious typhoid, and he records typhus stupor as a symptom in one of his typical cases; jaundice was present in four fifths and the liver and spleen were always large. Relapses and very rapid convalescence were the rule.

There is no official record of relapsing in Egypt between 1851 and 1884, the disease having been almost certainly forgotten and overlooked and returned as "typhoïde" or "typhique," so that when in February, 1884, a week after my appointment to the sanitary service, I discovered twenty-seven relapsing patients I was told by my native colleagues that the disease was quite unknown in Egypt, and it was not for many months after that I learnt of Griesinger's previous discovery. This first epidemic was in Batanda, a little mud village, near Benha, and had been returned as typhoid. It had lasted twelve days and had attacked ninety-eight people of whom I saw twenty-seven, some suffering from their first relapse and returning from a feeble attempt to work in the fields. The chief symptoms were vomiting, temporal headache, prostration, constipation, pulse 130, temp. 104·6°, and no sign of eruption. So far as I could learn, there was only one death. The villagers all vowed they had plenty to eat, and I came to the conclusion that it was rather the quality than the quantity of food, in addition to their unventilated huts, which was at fault.

This has, I think, been the experience of all later epidemics. Egyptian villagers of the poorest class live in mud huts with their cattle, breathing foul air, surrounded on all sides by stagnant water or heaps of manure, seldom getting meat to eat, and living chiefly on Indian corn, with occasional extras of cheese, milk, and vegetables.

In April, 1884, I again had the opportunity of seeing relapsing fever in an epidemic which had been returned as typhoid from Basateen village, four miles south of Cairo.

[1] 'Gesammelte Abhandlungen,' Berlin, 1872, 2nd ed., p. 511.

There were more than twenty deaths in six weeks out of a population of 1000.

In September, 1884, there was a relapsing epidemic at Nahasse, near Zagazig, of which I give some details below.

During 1884 there were also reported four other small outbreaks of relapsing, occurring in villages of three different provinces, and numbering 107 cases in all, but of these there are no trustworthy notes.

This is the case also with the only record of 1885, when twenty-three people were attacked in February in a village near Samanoud, and where the fever is said to have reappeared four months later.

The statistics of 1886 show three epidemics recorded, that of Tourah Prison, which forms the basis of this paper, one at Gafarieh village during March and April, when ten deaths were reported (from all diseases) out of fifty-one attacked, and the third at Manial Chiha village. This last is interesting because it broke out at the beginning of August immediately after the Tourah epidemic had ended.

It occurred in a village of 5000 inhabitants, near the bank of the Nile opposite Tourah. It is just possible, therefore, but not very probable, that the poison was conveyed to the village by some friend or visitor from the prison. This epidemic was watched upon the spot for six weeks by a native house surgeon who had just been working under us at Tourah. Seventy of the sick came to the improvised hospital tents, of whom eight died of relapsing. Many other sick villagers were secreted in their own homes, and of these twenty-four died without being seen by any doctor. No cases of typhus were seen among them. During the first half of 1887, there have been four reports of relapsing in country villages, after excluding doubtful fevers.

(1) Twelve cases, without death, occurred in March in Basateen village, where it had appeared three years before.

(2) In March and April there were eleven cases of relapsing, with one death in the Damanhour prison, where I have already stated each prisoner was allowed on the average either 196 or 237 cubic feet, judging by the day of inspection.

(3) In April a small epidemic occurred in the village of El Amar, not far below Cairo, and this was watched for three

weeks by the native house surgeon to whom I have just referred. Out of about 4000 inhabitants, sixty-three were treated in a hospital tent, and eight died. During this time many others were sick in their houses, and of these fifteen died. There were no cases of typhus among them.

(4) In April, fifteen cases with one death were reported from village above Cairo, and in May and June from a neighbouring village, Safat-el-Laban, there have been 120 cases with fifteen deaths from all causes. A patient from this latter village came to Cairo for medical advice, and was found by Dr. Milton to have the spirilla in his blood.

To conclude the history of this disease, one of my French colleagues tells me that he saw a private patient in May, 1887, in Cairo, with "bilious typhoid" and spirilla in his blood, and he believes that this man had had no communication with the villages which were at that time attacked.

Dr. Zancarol, after twenty years in Alexandria, has never yet found relapsing or the spirilla, but tells me he has seen many cases there of Griesinger's "bilious typhoid" with jaundice. Dr. Kartulis, after eight years in Alexandria, disbelieves in the presence of relapsing there, but saw an epidemic of bilious typhoid in 1882, and has since then seen several cases but has hitherto failed to find the spirilla. Koch in 1883, in Alexandria, and Schiess and Engel since then, have also failed to find spirilla in what are believed to be typical cases of Griesinger's bilious typhoid.

Relapsing in Europe and India.

The last account of this fever in England was in 1872; since then it has been observed in India in 1877-79, and among the Russian troops in Bulgaria in 1878-79, and during the same winter in various German towns. The last time it is known to have occurred in prisons was in 1865-67. Several times during late years it has reigned together with typhus, usually preceding it, but not invariably.

" . . . . or the typhus epidemic has preceded the relapsing fever, so that the cases of relapsing fever have begun to be common on the subsidence of the former, as at Berlin in

1868, at Liverpool and Glasgow in 1870, and at Posen in 1872" (Hirsch). To this list may now be added the epidemic at Tourah Prison in 1886.

Season.—Of the eleven outbreaks above mentioned which have occurred in Egypt during the last three and a quarter years, it may be noticed that two began in February, two in March, three in April, two in May, one in August, and one in September. This analysis is in accordance with Griesinger's belief that the maximum of epidemics in Egypt was in the spring. This is only natural, for it is at the beginning of the year that the Egyptian peasant has least variety in his food, and least personal cleanliness, and is constrained by the cold to make use of his evil-smelling hut, instead of sleeping out of doors as he does all through the warm months.

"Famine fever" is somewhat of a misnomer in Egypt, as elsewhere, and Hirsch may be quoted as saying, "By far the larger number of observations do not show any such direct connection between the sickness and this etiological factor"[1] (starvation).

Excluding the convicts of Tourah, all patients that I have seen were well-nourished healthy people, and certainly not starving, nor confessing to having been in destitute circumstances. But, on the other hand, the disease has not yet been observed in Egypt in any rich native, or in any European.

I now return to the two epidemics of which I have the best personal knowledge.

Relapsing Fever at Nahasse.

In writing of typhus fever at Nahasse in the autumn of 1884, I have already referred to about seventy-five cases of relapsing, of whom thirty-three patients, including fourteen males and nineteen females, were reported upon by Dr. Milton. His cases all recovered, and numbered six under 10 years of age, six between 11 and 20, nine between 21 and 30, five between 31 and 40, and seven between 41 and 50. These patients presented themselves at the hospital tents on the third or fourth day of the disease, having been able to get about with more or less difficulty until then.

[1] Vol. i, p. 610.

Usual state on admission.—Prostrate; unwilling to talk, but able to answer questions. Pain in head, back, and limbs not very severe, referred sometimes to joints, sometimes to muscles, headache usually frontal. Conjunctivæ suffused. Restless and sleepless. Skin very dirty, often caked with secretion, hot and dry; no eruption observed. Temp. from 103·5° to 104·5°. Tongue moist, thickly coated white, lips dry; in a few cases herpes labialis. Constipation marked. No pain or tenderness in iliac fossæ, no gurgling or tympanites, tenderness in splenic, hepatic, and epigastric regions. Spleen slightly enlarged in one third of the cases. Physical signs in thorax normal. Pulse 120 to 150, strong, full, regular; resp. 25 to 30, laboured; no cough. Urine scanty, high coloured; not examined for albumen.

Many patients remained in this condition till the end of the first week. Jaundice was noticed in only two cases, in two there was hæmorrhage from mucous membranes, and in about two thirds of the cases slight delirium, besides one fellah who staggered outside the tent to drive an imaginary buffalo out of the corn. In half the patients the tongue became a little dry; in the other half it was moist, and fairly clear throughout. The fever in most cases rose above 105°, in one case to 106·2°, and in another to 107·9°. Plentiful spirochæta were discovered in the blood by my friend Dr. Engel.[1]

I now quote from Dr. Milton's report to me:—"About the seventh day a complete cessation of all febrile symptoms took place. The patient, who the night before had been left semi-delirious, groaning with pain, with burning skin, dry tongue, and utterly prostrate, with a temperature of 105°, and a pulse of 150, would be found in the morning sitting up talking quietly, free from pain, with cool moist skin, temperature one or two degrees below normal, clean tongue, and perfectly happy except for a voracious appetite. In nearly all the cases this amelioration was preceded by profuse perspiration."

About the twelfth or fourteenth day the relapse occurred, with a renewal of the former symptoms, but characterised by no prostration, and the maintenance of the appetite in most cases. When the fever again subsided the patient remained

[1] 'Berl. klin. Wochenschrift,' 1884, No. 47.

fairly comfortable, but weak and anæmic for a few days, and was then discharged cured. There is no record of any second relapse having occurred. The treatment by drugs was very simple, a saline purgative on admission seemed always beneficial. Five-grain doses of quinine produced no marked effect on the fever, but salicylate of soda in twenty-grain doses every hour proved useful in at least two cases of hyperpyrexia, by lowering the temperature, without, however, shortening the attack of fever. Convalescent patients were treated with iron and quinine, or iron and salicylate of soda, the latter with the idea of preventing the relapse, but with no certain effect.

The following are condensed notes of a typical severe case at Nahasse:

Case 1. *Relapsing; no relapse.*—A girl, æt. 15, was admitted on the fifth day to the hospital tent. Temp. 103·6°, pulse 120. Prostrate; hot dry skin; low muttering delirium; dry brown tongue; complaining of headache and slight cough. 6th day: A.m., prostrate, delirious; dry brown tongue; no eruption. Temp. 104°, pulse 126. P.m., very restless, excited delirium; sordes on lips, general pains. Temp. 107·8°, pulse 150. Is taking twenty grains of salicylate of soda every hour. 7th day: A.m., much better; condition completely changed. Temp. has dropped to 97·9°, nearly *ten degrees*, pulse 98. No pains. Tongue dirty, but not dry or brown. Still rather prostrate, but quite rational. From this date there was uninterrupted convalescence.

Relapsing at Tourah Prison.

I have already accounted for 32 typhus patients out of my general notes on 363 of the sick. There remain 118 cases of undoubted relapsing, 63 cases of diarrhœa and dysentery without marked fever, 20 cases of lung affection, and, lastly, 130 cases of doubtful relapsing, simple continued fever, and ordinary debility.[1]

[1] Very many of the non-relapsing patients stated that they had suffered from the fever already, and had returned to the prison work only to fall ill again from diarrhœa or general weakness. Besides at least 100 patients treated outside the hospital forty suffering from chronic diarrhœa were admitted into it, and of these

During the epidemic all cases of fever not due to typhus, lung disease, or solar heat, were returned as relapsing, but for the purpose of this paper I have weeded out all doubtful cases and all those of which the notes are incomplete. There remain 118 cases (being 32·5 per cent. of all my notes) of which the diagnosis would be undoubted by anyone who had had a previous knowledge of the disease. I regret that I cannot go so far as a recent author,[1] who is able to write of 650 cases of relapsing, in every one of which the blood spirillum was discovered. The stress of work at Tourah and the absence of trained assistants prevented the microscope being used except as a luxury or to diagnose doubtful patients.

The principal symptoms were not different to those which have been recorded by Murchison and other observers in Europe.

Physiognomy.—Flushed face and injected eyes were seen in most bad cases, but never to the extent seen in typhus. The distressed expression caused by great pain was the first thing noted in a new relapsing patient. Paleness and a peaceful expression appeared directly the paroxysm subsided.

Eruptions were noted as absent in nearly all cases. In a mixed epidemic they were carefully looked for to exclude the possibility of the presence of typhus in the ward. Possibly more cases would have been noted if the patients had been

nine died. The post-mortem signs were congestion in patches, sometimes ten inches long, in the small intestines, but without ulceration. The large intestines were thickened and congested in their lower halves, and were in three cases marked by old dysenteric ulcers. One man died of acute peritonitis without ulceration, and another, left-handed during life, had complete transposition of his viscera. Of the twenty-three cases of chronic dysentery eight died. The post-mortem signs were great emaciation of whole body, recent hypostatic congestion of lungs, much congestion of liver, and in one case nine small calculi in the right kidney and seven in the left, with many small abscesses. The great intestines were considerably thickened, and showed innumerable pink oval or circular ulcers with gangrenous sloughing in the rectum in the above-mentioned case of pyelitis. The small intestines were also congested and thickened throughout. The great mortality among these intestinal cases shows the great difficulty we found in arresting the disease. Latterly they improved under an exclusive diet of milk, starch, eggs, sugar, and bismuth. The 20 lung patients included 9 chronic bronchitis, 1 acute bronchitis (fatal), 6 pneumonia (4 fatal); and 2 phthisis, 1 empyema, 1 pleurisy with effusion, all 4 of which were dying when found.

[1] 'Spirillum Fever in Western India,' Vandyke Carter, London, 1882, p. 32.

lighter in colour. In four cases I have notes of a doubtful eruption which consisted of faint reddish spots which only lasted a few hours. In another case I found some tiny ecchymoses in the left axilla after death but not elsewhere. But in three other cases there was a real eruption, of which the following are notes of a mild attack.

Case 2.—A hospital clerk, æt. 40, had been employed for a month in keeping diet sheets and other clerical work which took him daily among both fevers.

June 20th.—Quite well till 5 p.m. yesterday, since then much headache and fever but no shivering. Temp. 101·4°, pulse 90. Not giddy now but general pains. Much bilious vomiting. Tongue coated, foul, dry. Smokes much hasheesh. Is not fasting for Ramadan.

June 21st.—Temp. 103°, pulse 112; great headache; tongue coated; bowels open after purge; sleepless. 4th day: Temp. 101·4°, pulse 120; headache; pains better; no eruption. 5th day: Temp. 102·2°, pulse 126; giddy; headache; tongue dry and thickly coated; sleeps well; small petechial eruption all over back, chest, and shoulders, like large flea-bites, but without puncta. Has light skin; feels much better, but is frightened by eruption. 6th day: Temp. 98°; says he is quite well and wants to return to his work; tongue coated (hasheesh); eruption completely disappeared from back, but still faintly present on chest and front of axillæ and does not fade on pressure. 7th day: Temp. subnormal; eruption gone.

July 7th (nineteenth day).—Left hospital. No relapse. No desquamation.

The *temperature* observations were taken in the mouth in my presence in the afternoon besides morning records of the bad cases.

The highest temperature which I took myself was 106·9° (Case 3), and in several other patients the maximum reached 106°, though in many no record above 104° was noted.

The greatest drop in temperature during the same day that I saw was 9° from 104·8° to 95·8°.

The crisis was ushered in in several other cases by a sudden drop from 106° to 98,° 105° to 97·5°, 105·1° to 96·8. The

sudden loss of heat and subsequent subnormal temperature for a few hours, or even a few days, is quite pathognomonic of typical relapsing. I only once saw the temperature in the relapse much higher than in the primary fever. A man whose maximum had been only 102·2° reached 105·8° on the first day of relapse, with pulse 132; his temperature on second day was found to be 108·5°, but when I tried him with three other thermometers I found it only 105·6°. The third day it was 103°, and the fourth 96·4°, with the occurrence of the second crisis. The maximum temperatures seemed to cause the patients no greater inconvenience than moderate ones.

Case 3. *Relapsing; without relapse.*—Halil, æt. 22, clerk, went round the fever wards on May 15th to write bed-tickets, and was greatly afraid of catching the disease. Did not go into wards again till May 23rd, and two days after became feverish. 4th day: Temp. 103·4°, pulse 120, resp. 48; tongue thickly coated, brown; bowels open after salts; very giddy and frightened; pain all over, but worst in epigastrium. 5th day: Temp. 102·6°, pulse 120; pain in back, head, and legs; tongue dry, coated white. 6th day: Temp. 106·9°, pulse 120; copious epistaxis. 7th day: 8 a.m., temp. 104·2°, pulse 128; (crisis) 1 p.m., temp. 98·2°, pulse 102, resp. 24; sweating very freely; still a little pain in chest; feels weak, but comfortable; tongue dry, white. 8th day: Temp. 97·2°, pulse 102, weak; slight pain in head and back. 13th day: Temp. subnormal for five days, pulse 84; tongue clean, moist; no pain since last note; eats well; wants to go back to his work. 14th day: Temp. 98·2°, pulse 99; sweating; pain in knees after walking. 16th day: Temp. 98·4°, pulse 90; sweating; giddy; pain all over body; tongue dry, clean; bowels open; a relapse suspected. 17th day: Temp. 98·4°, pulse 90; not giddy; no pain; tougue moist, clean; feels quite well. 23rd day: No fresh symptoms. To go home to Cairo for fifteen days' leave.

Sweating to a slight extent took place during the fever, but this may have been due only to the heat of the weather, and the quantity of water drunk. Doctors and attendants on the sick were often bathed in perspiration. The very profuse sweat which accompanies the crisis and soaks the bedclothes for some hours was most marked. It was examined in a few cases and

found to have an acid reaction. The skin remained cold and clammy for two or three days after the crisis.

The *odour* from the skin was musty and very marked in some cases, but never so strong and penetrating as in typhus. Clean patients immediately after being washed and placed in a clean bed seemed to retain some of the odour peculiar to personal uncleanliness which we noticed among all the convicts.

The *pulse* during high fever was generally 120 or 132. In a dozen cases it was several times 144, in very few 150, and in only one, on one occasion, 168. In many cases it was as high on the first day of fever as later. At the crisis the pulse usually fell from 120 to 96, but in exceptional cases it fell in a few hours from 125 to 66, or from 152 to 84. The rapidity of the pulse not declining together with, or even before, the fall of temperature, agrees with observations in India,[1] but not with those in Europe.

The *respirations* were only accurately noted in bad cases, when they sometimes rose to 48 and 60 during high fever. Cough, with scanty bronchitic sputa, was present in twenty-four cases.

The *tongue* in a very large number of cases continued moist and clean throughout the attack, thereby furnishing a very useful aid in diagnosis, but giving no information as to the height of the fever or as to the presence of diarrhœa. The clear triangular space at the tip, noted by Murchison and others, was often present, the rest of the organ being covered with a thin whitish fur. The tongue was very seldom flabby or indented by the teeth. In one case it was noted as too red, and denuded of epithelium, in two it was very tremulous, and in twelve very bad cases it became dry, brown, and fissured. In twenty-four patients it was dry and slightly coated white during the first day or two, and afterwards became moist and clean.

Many cases on admission complained of loss of appetite, which is always a serious failing in an Egyptian's eyes, and this of course continued during the fever. I saw no cases of rapidly appearing or voracious appetite after the crisis.

Thirst was a constant symptom, and men racked with pain

[1] Vandyke Carter, p. 140

would leave their beds to gulp down tinsfull of water. Probably this was increased by the heat and dryness of the air, for during the epidemic the hot wind from the desert seemed scorching and suffocating under the noonday sun, and on several different days an English clinical thermometer in my waistcoat pocket ran up as high as 112°.

Vomiting I have only noted seven times, but it probably occurred much oftener, and especially among patients before their admission to hospital. Nausea was often complained of. In the seven cases seen, the vomited matter was watery and tinged with yellow-green bile, but never coloured by blood. Gurgling, iliac tenderness, and tympanites were not present.

Epigastric pain was complained of by twenty-five patients at the commencement of the fever, and was in some cases very severe. In nearly every patient with fever there was tenderness upon pressure in the epigastrium or in one hypochondrium or both. This symptom seemed due to acute congestion of the left lobe of the liver, though in many cases that organ could not be felt to be enlarged.

The *liver* and *spleen* were both painful and slightly enlarged in sixteen surviving cases, and in three others both organs were temporarily very large. One man came into hospital on June 20th complaining of pain in his spleen and epigastrium, and saying he had been on the sick list for fifteen days. The next day I found him giddy, with laboured breathing on account of pain in hypochondrium and without cough. His spleen measured seven inches vertically and was very tender to the touch. The microscope showed spirilla, and very numerous white blood-corpuscles, 100 being in the field at once. Temp. 104·2°, pulse 144.

Two days after, his crisis came and the spleen slowly resumed its normal size.

Case 4. *Relapsing; large spleen and liver during second attack* (*?*).—A warder who had been employed to superintend the cleaning of the prison cells for the past seven months, caught relapsing on May 15th, and was sent to Kasr el Aini hospital on May 20th, where he stayed till June 2nd, and then went to his own house cured. He began to be again a little ill on June 10th, and came into Tourah hospital on June 17th,

saying that it was the first day he had been seriously ill. He was groaning, jaundiced, with small pupils, complaining of pain in his back and abdomen. Temp. 104·3°, pulse 116. Spleen measured eight inches vertically, of which three inches were below the ribs. Liver measured ten inches in right nipple line, five inches being below the ribs.

June 18th.—Crisis. No pain. Temp. 95·8°, pulse 84; tongue very red, moist, and rough.

June 19th.—Temp. 97·4°, pulse 72; jaundice continues. Spleen seven inches, two inches below ribs. Liver six inches, two inches below ribs.

June 23rd.—Temperature continuing subnormal; tongue clean and moist; no jaundice. Spleen three inches, and not felt below ribs. Liver five inches of which half an inch below ribs.

Jaundice is noted among twelve of my cases, that is, in the proportion of 1 in 9·8, but eight of these twelve cases were fatal, so that the proportion among survivors was only 4 per cent., and among those dying 47 per cent. This is a greater difference than that pointed out by other observers. It is quite possible that many cases of mild jaundice may have been overlooked among cases of malarial cachexia, and the natural yellowness of some native conjunctivæ. There is no doubt that this symptom was more frequent and more intense in severe than in mild cases, and moreover I never saw it during the relapse. Occurring in bad prostrate patients, with delirium and dry, brown, fissured tongue, it was useful as diagnosis against typhus. There was no case in which there was any evidence of obstruction to the flow of bile.

Constipation was noted in thirty-one cases on admission, and was treated by Epsom salts.

Diarrhœa was present in twenty men, some of whom came to hospital already suffering from it, but most of whom contracted it in hospital after the fever, perhaps from errors in quantity or quality of food. It was easily checked by Epsom salts, ipecacuanha and bismuth. Dysentery for a few days was present in four convalescing patients.

The *urine*, owing to the absence of assistants, could not be examined as a matter of routine. Scanty excretion of urea

and slight albuminuria were found in the few cases examined which approached the "typhoid state." There was no hæmaturia or melæna.

Headache was specially complained of by sixty-eight of my patients on admission, and with most of them it lasted during the paroxysm, disappeared at the crisis, and returned again with the relapse. It was almost invariably frontal.

Giddiness was also a very prominent feature, and was complained of by fifty-three men. It was very severe, and was one of the earliest symptoms, lasting till convalescence. It was this which at first compelled patients to sit or lie upon their beds, and on more than one occasion men fell down in the wards by trying to overcome their vertigo by walking.

Bone pains were specially reported in sixty-three cases, and were usually considered the prominent symptom by the sufferers. The pains began early and usually subsided with the paroxysm, but in some bad cases continued throughout convalescence. The knees were the most favourite part affected, but very often the pains were too general to be at all localised. In no cases were they attended by local heat, redness, or swelling. This was the symptom for which men demanded relief, and which afterwards remained longest in their recollection. They usually stated the pain was in their bones, but this included also pain in joints and muscles.

Delirium was noted in sixteen cases, or 13·5 per cent., mostly during the paroxysm, but in rare cases continuing for a day or two after the crisis. In four cases the delirium was acute, noisy, and shouting, in the others the men merely seemed unduly happy, and were a great source of amusement to their fellows.

Stupor in two cases, which might easily have been confounded with typhus, lasted through the febrile period and well into the intermission, and in a third case a patient remained prostrate for ten days. Nearly all those cases died in which the patient passed inio the "typhoid state."

Sleeplessness occurred often, and was due to high fever and bone pains.

Organs of special sense.—Injected conjunctivæ were seen in several bad cases, but not to the extent seen in typhus. The

pupils were contracted in four cases and dilated in two, and in others noted as normal.

Earache was only complained of once, but singing in the ears often.

Epistaxis occurred three times, and always within a day of the crisis. In one case it was very profuse.

Hyperæsthesia was only noted in one bad case.

Clinical Stages of Relapsing.

As everyone knows, these usually are, first paroxysm, crisis, intermission, relapse, crisis, convalescence. No light can be thrown upon the question of incubation, because all our patients had been exposed to contagion for weeks before being attacked.

Premonitory symptoms were present in a few cases, causing the convicts to beg off their tasks for a day or two before admission to the hospital with fever. These few complained of loss of appetite, debility, and pains, but these symptoms were complained of by dozens of other convicts who never became feverish.

The *first paroxysm* is, however, generally a very sudden attack. A rigor, headache, giddiness, nausea, pains, and a sense of fatigue short of prostration, came on without warning, even while engaged in labour at the quarries, or while returning from work.

The duration of the primary paroxysm averaged 6·7 days, varying from two cases of three days to two others of twelve days each. Murchison says (p. 373) "that probably in no case, except where complications exist, does it exceed ten days." Vandyke Carter (p. 40) reports rare cases in which the crisis occurred as late as the evening of the eleventh day. In my two cases which were deferred till the twelfth evening, there were no complications, and the temperature was taken daily by myself, while in one of them the diagnosis was confirmed by discovery of spirilla. These two cases ended by a very slightly marked crisis, and were not followed by relapse; one of them was a prison warder.

The *crisis* is quite typical of the disease, and was almost

invariably attended with copious sweating, which began before the temperature had fallen, and continued till the following day. Grateful relief, deep sleep, coldness of skin, and slight delirium (in a few exhausted men), accompanied the sweating.

The *intermission* varied from several cases of six days each to one of fifteen, the average being nine days. The notes contain many records of patients desiring to return to their work, because they felt perfectly well, and yet on the morrow they were again feverish, and groaning with pain and thirst.

The *relapse* occurred in 68 of the 101 surviving patients, and lasted several times only one day, but on one occasion nine days, the average being 3·2 days. As the epidemic approached its end the relapses became less frequent. The second paroxysm is in my experience a modified condition of the first, and, like it, comes on without warning, but in it diarrhœa seems a more frequent and more serious complication, partly because the patient is exhausted by his previous fever.

The *second crisis* is similar to the first, and is noticeable for its rapid drop of temperature and subsequent subnormal heat, for its removal of pain and thirst, and for its copious sweating, often attended by diarrhœa.

Convalescence among the convicts was very slow after all disappearance of fever; the notes extend over an average of sixteen days in hospital after the last crisis, besides a few more days when they were under observation before returning to light work.

A *second relapse* was present in thirteen cases and never lasted more than three days, seldom being of more than one day's duration. It caused pain and distress to the patient, but otherwise was not of importance.

A *third relapse* was noted in one case, and only lasted one day.

No relapse at all was discovered in twenty-nine cases, most of which occurred at the close of the epidemic. It should be remembered here that my notes did not begin until the mixed typhus and relapsing epidemic had been going on for at least six weeks.

A *second attack* of relapsing seems to have occurred in four cases during the outbreak at Tourah, an interval of four or five weeks having intervened between the last relapse of the first attack and the primary paroxysm of the second attack.

Complications and Sequelæ.

Bronchitis was present in four cases, and true pneumonia in two. Hæmorrhages were not seen, excepting three cases of epistaxis. Marked anæmia was common during and after convalescence. In two cases of considerable debility there was kerato-iritis in one eye during convalescence. Three men were found to be blind of both eyes during the epidemic, but the blindness was previous to the fever. Diarrhœa and dysentery I have already referred to. Patients sometimes returned to us after their convalescence suffering from diarrhœa and a little fever. This was generally in consequence of their having been returned to prison labour and diet which were unsuited to their protracted weakness. Œdema of the feet and legs was present in a very few of the more debilitated. Herpes of the mouth was noted occasionally, and during convalescence a few patients suffered from boils. Parotid buboes occurred in two cases, one of which died. They appeared during the second intermission after the relapse. Very little pus flowed when they were incised, but there was a great tendency to burrow towards the hyoid bone and elsewhere, and in the fatal case the anterior mastoid process of the temporal bone was laid bare.

The following case is possibly an instance of what others would call bilious typhoid. It only differed from many others in being more acute and more congestive but with less fever.

Case 5. *Bilious typhoid (?); death.*—A light-coloured convict was admitted on May 20th with a temperature of 102·2°, and was said to have been ill for three days. 4th day: Temp. 101·8°. Very weak; bowels open eight times after purge; tongue moist, coated yellow; jaundice; blood shows spirilla; face purple. 5th day: Temp. 97·7°, pulse 72. Semi-comatose, typhoid state; very deep jaundice; liver and spleen tender and enlarged; tongue dry, coated; lungs resonant, except at bases behind; slight cough. 6th day: Temp. 100·4°. Dying; pulse 108, very feeble, can hardly be counted; resp. 36, very laboured; much cough; mucus in trachea; lungs quite resonant in front; tongue very

dry, glazed, and red. Abdomen tender everywhere. Jaundice continues. Odour of breath and skin almost as bad as in typhus. No eruption could be seen.

Post-mortem (twenty-four hours later).—Deep jaundice; tiny dark petechiæ on chest. Body emaciated. Right lung, recent red congestion. Left lung very congested, purple, and œdematous; feels solid but floats well. Liver large, yellow-brown and soft. Spleen double size, bright red and pulpy. Kidneys showed recent congestion. Intestines fairly normal; no ulcers. Blood normal, not liquid, not dark coloured.

Diagnosis of Relapsing and Typhus.

Typical cases of the two fevers are so widely different that it is only protracted and severe cases of relapsing approaching coma which are difficult to distinguish from mild cases of typhus occurring in black subjects.

Like other fevers which cannot at once be diagnosed by the eruption, it may in rare cases be necessary to wait three or four days before pronouncing an opinion. In relapsing the accession and the rigors are more sudden, the headache, giddiness, and bone pains are more severe, high fever occurs earlier, eruption is absent, jaundice, vomiting, and tenderness of the upper abdomen are more likely to be present, the pupils are less contracted and the odour is less offensive. In ordinary cases the moist, comparatively clean tongue of relapsing is sufficient to dispel doubt, but patients seen semi-comatose for the first time may have a dry, brown, cracked tongue very suggestive of typhus; but even these tongues can be protruded in relapsing instead of being curled up in the floor of the mouth as in typhus.

The crisis, sweating, and subnormal defervescence about the seventh day, justify the diagnosis in relapsing, and before the crisis this may always be settled by the presence of the blood spirillum.

In 1884, when I was wrongly assured that relapsing was unknown in Egypt, I thought we might have to deal with remittent fever as I had seen it in Turkey in 1877. But I now know that remittent is very rare in Egypt and quite

unknown in all but a few malarial districts, while I hope this paper has shown that relapsing is very common.

Yellow fever is as unknown in Egypt as in England.

Contagion.—The liability of attendants on the sick and others to contract relapsing was well shown.

In my notes on typhus I have given particulars of two typhus patients who contracted relapsing while in hospital. At my first visit to Tourah I made inquiry about the number of those who had apparently contracted the disease from the sick. I found that during the past six weeks, thirty-two prisoners had been employed as ward-servants, and that every one had caught fever. None of these men died, and it is probable that the fever in every case was relapsing. Of the five attendants who had been sent from the Cairo Hospital, one had caught relapsing, and in addition four of the black sentries whose duty it was to guard the prison had been admitted as relapsing patients. The later cases of which I have personal notes are fourteen, and include six prisoners, five warders, two clerks, and the Director of the prison, all surviving, but fairly severe cases. Of the six prisoners who were acting as ward-servants, four were in attendance upon relapsing patients, and two were attending exclusively in typhus wards. The four had been nursing in relapsing wards for periods varying from two to six weeks before being attacked.

Case 6. *Relapsing; second attack.*—May 31st.—An attendant (a convict) admitted from a relapsing ward. Left hospital forty-four days ago convalescent from a former attack. Was quite well until early this morning. Temp. 102·6°, pulse 114. Not giddy; pains in both groins; tongue dry and white. 2nd day: Temp. 101·8°, pulse 120. Pains all over; giddy; headache. 3rd day: Temp. 103°, pulse 114. Pains in hips; says he is better; tongue clean. 4th day: Temp. 104·4° a.m. Crisis in the afternoon; sweating; not giddy; no headache; no pain. 5th day: Temp. 96·6° Quite comfortable. No relapse followed.

Case 7. *Relapsing after exposure to typhus.*—May 29th.—A convict was admitted who for the last twenty days has been helping to nurse patients, during the last ten of which he has been in a typhus ward. Taken ill this morning only with

rigor, headache and giddiness, pain in knees. Temp. 103·4°, pulse 102. Slight cough; no jaundice; tongue clean and moist; constipation. 2nd day: temp. 103°, pulse 138. Pains in bones; slight sweating. 3rd day: Temp. 102·2°, pulse 138. Bone pain; no eruption; tongue clean, moist. 4th day: Temp. 104°, pulse 126. Bone pain. 5th day: Temp. 102·4°, pulse 108. No pain; sitting up; crisis beginning. 6th day: Temp. 96·8,° pulse 90. Tongue slightly coated brown. 16th day: Temp. always subnormal, pulse 72. Feels weak; no more bone-pain, or giddiness until to-day. 17th day: Relapse. Temp. 103·3°, pulse 120; headache; giddy. 18th day: Temp. 104°, pulse 102; headache; giddy. 19th day: Second crisis. Temp. 99·3°, pulse 90. Sweating copiously; still giddy, but no pain. After this came the ordinary convalescence.

Case 8. *Relapsing from a typhus ward; second attack.*—May 27th.—A hardworking convict admitted who was discharged from hospital six weeks ago after relapsing, and has been employed as attendant on the sick for the past month. Being intelligent and active he was chosen five days since to nurse patients in the last stage of typhus. Was quite well yesterday morning, but in the evening was suddenly seized with rigor and pains in the knees, back, and forehead; tongue moist, white; bowels open. Temp. 104°, pulse 120. 3rd day: Temp. 105·2° a.m., pulse 132. Temp. 104° p.m. Says he is better than yesterday; ? jaundice; no eruption; tongue dry, coated white; spleen and epigastrium tender; liver not tender; no enlargement of liver or spleen; pain in loins. 4th day: Crisis. Temp. 98·6°, pulse 92. Tongue moist, clean; says he is quite well to-day; ? jaundice. 12th day: Relapse. Temp. 105°, pulse 126. Tongue dry, white; pain in head and loins; not giddy; spirochæta not found in blood (because eve of crisis). 13th day: Crisis early this morning. Temp. 99·5°, pulse 96; not giddy; no pain. After this date ordinary convalescence.

The five warders who contracted relapsing during my term include Case 4. They were all men whose duties brought them by day into close relation with ailing prisoners, and were ordinary surviving cases. All relapsed except one at the close of the epidemic, which ended by lysis rather than crisis.

The case of the Director of the prison is interesting because he was not directly exposed to the causes of the epidemic which were common to the convicts, and, to a lesser extent, their attendants.

He fell ill suddenly on April 19th, with high fever, giddiness, and bilious vomiting. For eight days he suffered from loss of appetite, great weakness, well-marked jaundice, constipation and aching in his head, ears, and limbs. The doctor, who subsequently reported his case to me, treated him with enemas, quinine and leeches behind the ears for his headache. At the crisis the sweating was so profuse that the patient fully believed he would die. The relapse came on May 5th (seventeenth day), after which he became quite convalescent in seven days.

Dr. Milton, two native house surgeons, and myself cut our fingers at relapsing autopsies, but were fortunate enough to escape inoculation. One of these house surgeons suffered during our work from fever, severe pain, and prostration, but these proved to be due to dengue which he had contracted in Cairo from his brother, who had just come from the provinces to visit him. Moreover his blood showed no spirilla. After six weeks' continuous work at Tourah I found myself suddenly feverish and suffering for a week from acute pains all over, and headache. But my temperature never rose above 102°, my blood contained no spirilla, and the attack was probably of malarial origin. This indisposition prevented my continuing to work at the prison, and is partly responsible for the insufficiency of this paper. Lastly, as with typhus, none of the laundry workers contracted the fever.

Occupation.—During the epidemic the convicts who worked at the quarries in the mountain supplied us with more than half our patients, including all diseases, but taking relapsing alone, and excluding all cases of apparent contagion from the hospital sick, there were no less than 74 per cent. of convicts attacked from the quarries alone. The remaining 26 per cent. was made up of basket-makers, carpenters, cooks, water-carriers, and light labour convicts.

Mortality.—Including all deaths, there were seventeen fatal cases at Tourah, or 14·4 per cent. This compares very unfavorably with Murchison's English statistics of 4 per cent.,

but is not unlike the Indian experience of 18 per cent., and that of St. Petersburg (1865) of 14·9 per cent. Nearly all the fatal cases were admitted before the decline of the epidemic, two dating from April, fourteen from May, and only one being admitted during June. One man died of peritonitis, two of pneumonia, two of dysentery, and most of the others from prolonged diarrhœa and exhaustion. The mortality during the febrile period was extremely small, most of the deaths occurring from sequelæ. Only one man died during the primary paroxysm on the sixth day (Case 5). Four men died during the first intermission on the tenth, eleventh, and fifteenth days. In only nine other cases can the date of commencement of illness be accurately fixed, and in those death occurred on various days between the twenty-eighth and forty-eighth.

Pathological Anatomy.

The *blood* was examined in many cases during life, but the spirillum (*Spirochæte Obermeieri*) was only found in one fourth of the examinations. The failures were due to non-relapsing cases being wrongly selected at the beginning of the epidemic, and to the observation often being made a little too late, that is a few hours before the intermission set in. It is well known that the spirilla disappear entirely from the blood a few (? twelve) hours before the temperature falls at the beginning of the intermission. When fresh blood was examined by myself from typical patients, not immediately preceding the non-febrile stage, I invariably found two or more pathogenic spirilla. The failures were therefore due to our own errors and not to absence of the filaments. The microscope work upon the spot was done by daylight with a magnifying power of 500 diameters, and fresh blood was taken from the washed fingers of patients. But it was sometimes necessary to examine more than one specimen.

The only other constant change in the blood which I noted was increase of white blood-cells, and this was out of all proportion to the effects of any previous leukæmia.[1] The appear

[1] This was first noted in 1843.

ance of the spirillum differed in no way from the description and plates in text-books, excepting that we never saw any swarms or aggregated masses, the filaments being always unattached, in motion, and never more than four or five in the field at once. The movements of the spirilla were partly rotatory, but chiefly those of lateral progression. They varied from a slight vibratory thrill to very rapid motion, making it difficult to keep them under the microscope. The spirilla often attached themselves, as if in sport, to the blood-cells, and pulled them temporarily out of shape. We were able to demonstrate the spirilla to others and even to the native assistants who were not accustomed to microscope work.

It being impossible to examine specimens of dried blood at Tourah, I made many attempts to bring the living spirochæta by means of leeches to my friend, Dr. Engel, who was working at a laboratory in Cairo, but only failures ensued. The method might perhaps be tried again, especially as neither patients nor leeches seemed to suffer by the transaction.

The blood after death and internal organs were not examined microscopically, only one man among my notes having died during the febrile period. But during the first two days of my visits I conducted some autopsies of such cases that had died undiagnosed, and had not been seen by me during life.

Condensed post-mortem notes.—We were able to notice the following points: emaciation from previous diarrhœa, discolouration of skin, but not so marked as in typhus, healthy muscles and heart and red clotted blood, deep jaundiced tint of skin, bones, and sometimes intestines, no eruption, congestion of kidneys, and, to a less extent, of other organs. The spleen in four cases was of normal size, but generally twice too large, and twice it was six times its normal size from old disease. In two cases it contained gummata, and in two others it was like liquid jam. The intestines were congested in the cases of diarrhœa, and as in Egyptians dying of other diseases, round-worms were not uncommon. The solitary glands and Peyer's patches were never ulcerated, but in two cases there were old dysenteric ulcers. In one case, sixteen hours after death, there was great peritonitis, the liver was found to contain air like a sponge, and was of yellow-brown colour. In this case and all others of jaundice, the bile-ducts were per-

fectly pervious, and bile was found in the duodenum. The brain appeared healthy, no congestion, no excess of serous fluid, membranes normally adherent.

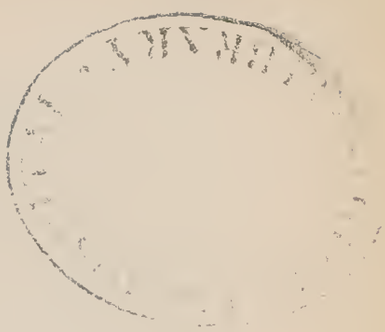
The autopsies were performed at periods varying from three hours to twenty-four hours after death, the average being seventeen hours.

The *treatment* of relapsing consists in alleviating symptoms as they arise. No febrifuge has yet been discovered to cut short the attack. Uræmic symptoms should be carefully watched and energetically dealt with.

There is no doubt that the epidemic at Tourah was quickly and efficiently arrested by the extra aeration, ventilation, washing, sanitation, rest, and feeding introduced by Dr. Milton for both sick and healthy convicts.





AN OBSERVATION

UPON THE

PHYSICS OF THE MALE URETHRA.

By W. W. WAGSTAFFE, B.A., F.R.C.S.

I HAVE been struck, during the passage of catheters and bougies in the out-patient room, with the fact that a natural twist is given to the instrument during its removal from the bladder and urethra of the male, a rotation very sensible to the feel, especially when light and flexible instruments are used. In order therefore to test the accuracy of one's impression I have adopted, after various trials, the simple one of using a bougie à boule of medium size (about No. 10 of English measurement). This is passed thoroughly into the bladder, and then withdrawn until a check is felt by the neck of the bladder. From this point the observation starts, and the distances are taken from this start point.

The degrees of rotation are estimated by means of a pin fixed vertically into the stem of the bougie just outside the meatus. The bougie à boule having so fine a stem, and a bulbous end which can be readily grasped by the part of the urethra it is in contact with is rotated with readiness, and I have therefore been careful to avoid any rotation being given to it by external means. I have found that the simplest means of withdrawing the bougie has been by a piece of fine silk noosed round the stem near the top. After its first start, however, so little traction is necessary that the observations have to be

taken promptly as the instrument is pasing often without any external traction. The shape of the bulb of the bougie à boule no doubt helps to explain this forward movement as the urethra contracts upon a conical mass. Where stricture is said to have existed in these cases it was either very slight or imaginary, for the bougie equal to No. 10 English passed without difficulty. When a rather larger instrument was used no material difference was noticeable in the results, but, as may be seen in Obs. ix and x, a larger instrument sometimes showed the results more clearly ; and in this case the urethra was larger than usual.

The first result of these observations is that in all the cases the direction of the rotation given to the bougie is the same. In one case the rotation began with a small divergence to the patient's right side, but this was followed by the usual rotation to the patient's left. In all the other cases rotation began at once to the patient's left for a certain distance and to a certain degree—generally making the index stand directly opposite its original position—passing, that is to say, through 180° or half a circle. This position was reached when the instrument had passed about four inches from its start, and then began a reverse rotation, usually but not invariably, until the index stood at right angles to the start. An explanation of the phenomenon is probably to be found in the peculiar construction of the urethra. In the ordinary (collapsed) state the canal is represented by a fissure bounded by columns of mucous membrane which may be traced from the bladder outwards running in the direction of an elongated spiral and causing progressive alteration in the form of the channel. The change begins in the prostatic urethra where the tube as seen in transverse section takes the form of an inverted U, owing to the upward projection of the verumontanum. It is at this point that the rotation of the catheter begins. At the apex of the prostate the fissure is shorter and horizontal, with only a slight convexity forward. In the membranous urethra the section becomes stellate, in the bulbous horizontal, with a slight sinuosity. The latter form is maintained through the greater part of the penile portion of the canal, but in approaching the glans is gradually replaced by an inverted T, the vertical limb of which, at first very short, gradually

elongates, while at the same time the horizontal limb becomes shorter and at length disappears, leaving a single perpendicular slit that ends at the external meatus.

In tracing out these changes carefully upon the subject it will be found that the urethra is rifled somewhat after the manner of a gun-barrel, but the spiral of the urethral tube which runs from right to left in about the upper three fourths of its length usually becomes reversed near its distal extremity. The object of the spiral grooving in the case of the gun is to secure for the projectile a rotatory motion and greater precision in the direction of aim, and we may fairly assume that similar advantages of a physiological nature are gained for the outflow of the urine[1] and semen by the arrangement of the urethral column.

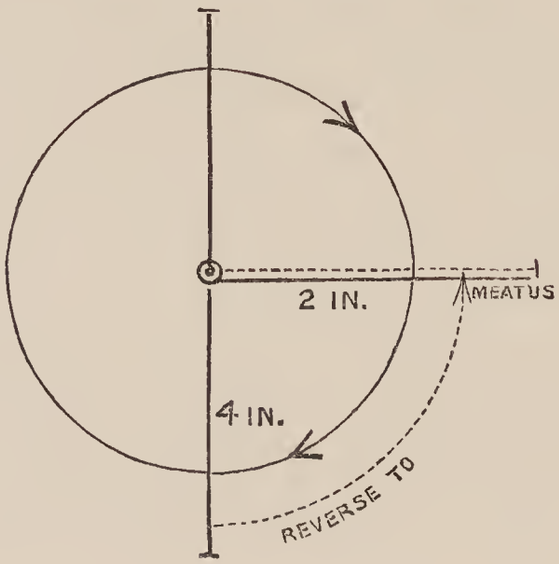
The practical application of these observations is not yet obvious, but it is a question whether the arrangement of the urethral mucous membrane may not point to the kind of rotation which would render most easy the introduction of a catheter.

* It is sometimes stated that a twisted stream is one of the early signs of stricture, but this is misleading, since the normal outflow is always perceptibly spiral. This phenomenon is perhaps not altogether due to the urethral rifling, since it has been found that water forced out of a narrow, smooth-edged slit does not continue in a straight "tape" jet, but is shot out as a spiral.

Obs. I.—November 30th, 1877.

Healthy apparently.

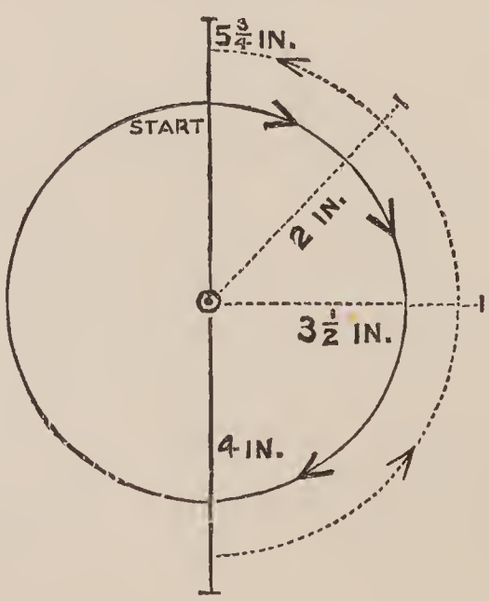
Instrument passing outwards from neck of bladder.
Rotation 90° to patient's left in 2 inches.
„ 180° „ 4 „
Gradual reverse rotation 90° to meatus.



Obs. II.—December 4th, 1877 ; November 30th, 1877.

Stricture of Urethra.

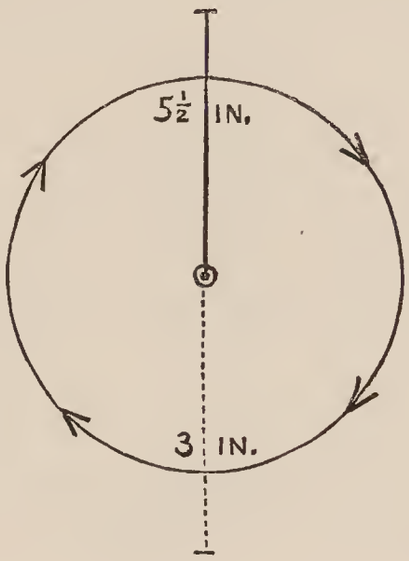
Instrument passing outwards from neck of bladder presumably.
Rotation 45° to patient's left in 2 inches.
„ 90° „ $3\frac{1}{2}$ „
„ 180° „ 4 „
Reverse rotation to original (180°) $5\frac{3}{4}$ inches.



Obs. III.—December 4th, 1877.

Acute Gonorrhœa.

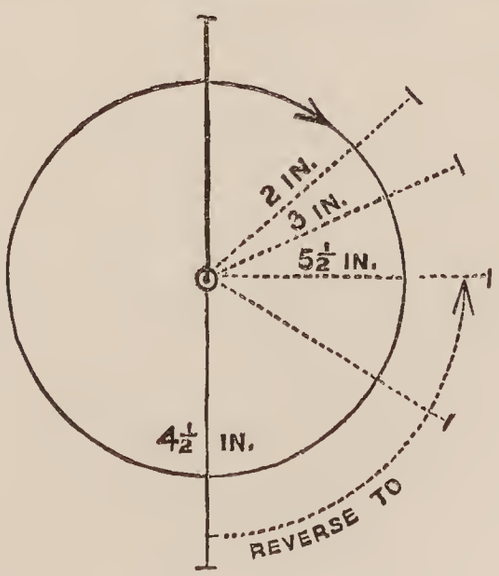
Instrument passing outwards from neck of bladder.
Rotation 180° to patient's left in 3 inches.
„ 360° „ 5½ „
Patient fainted.



Obs. IV.—December 4th, 1877.

Stricture.

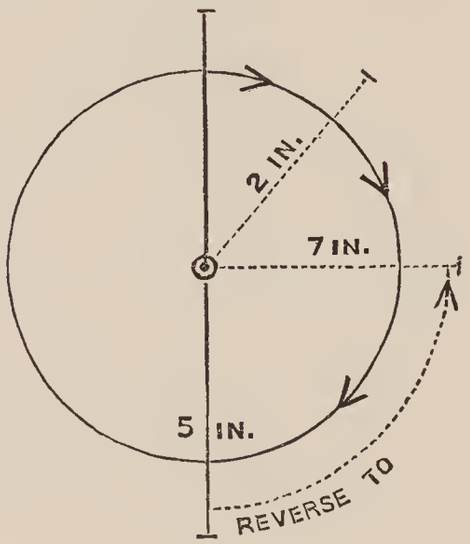
Instrument passing outwards from neck of bladder.
Rotation 45° to patient's left in 2 inches.
„ 60° „ 3 „
(Rotation here checked by stricture for ¾ inch.)
Rotation 180° to patient's left in 4½ inches.
Reverse rotation to 90° in navicular fossa.



Obs. V.—December 7th, 1877.

Stricture.

Instrument passing outwards from neck of bladder.
Rotation 45° to patient's left in 2 inches.
Reverse slightly at 3 inches.
Rotation 180° to patient's left in 5 inches.
Reverse to 90° at 7 inches.

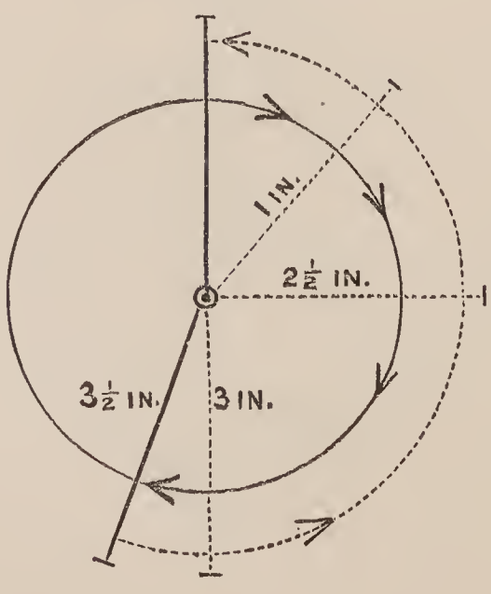


Obs. VI.—December 7th, 1877.

Healthy apparently.

Instrument passing outwards from neck of bladder.
Rotation 45° to patient's left at 1 inch.
,, 90° ,, $2\frac{1}{2}$ inches.
,, 180° ,, 3 ,,
,, 200° ,, $3\frac{1}{2}$,,
The reverse rotation to 0°.

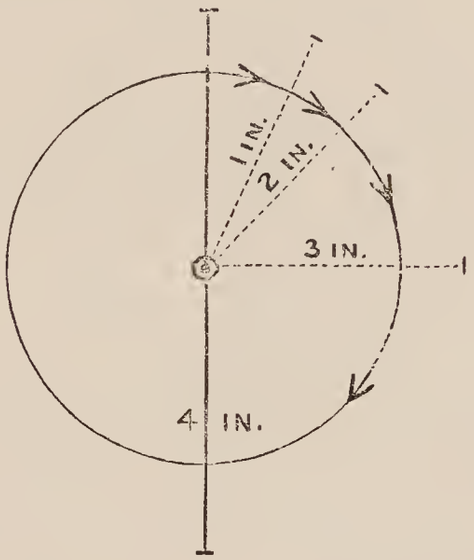
Start and finish.



Obs. VII.—December 7th, 1877.

Healthy apparently.

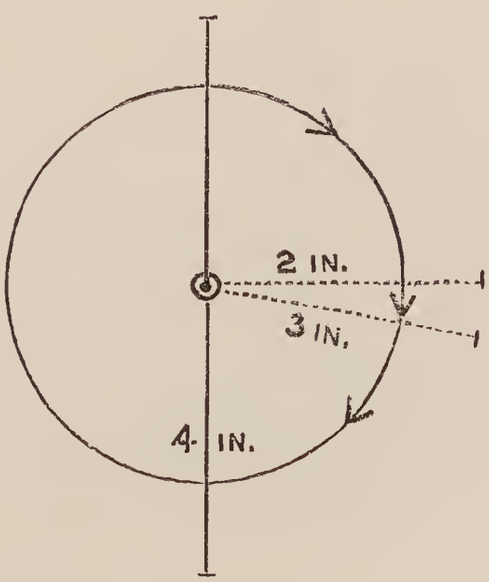
Instrument passing outwards from neck of bladder.
Rotation 25° to patient's left at 1 inch.
„ 45° „ 2 inches.
„ 90° „ 3 „
„ 180° „ 4 „
No reversal of rotation.



Obs. VIII.—December 7th, 1877.

No record of disease.

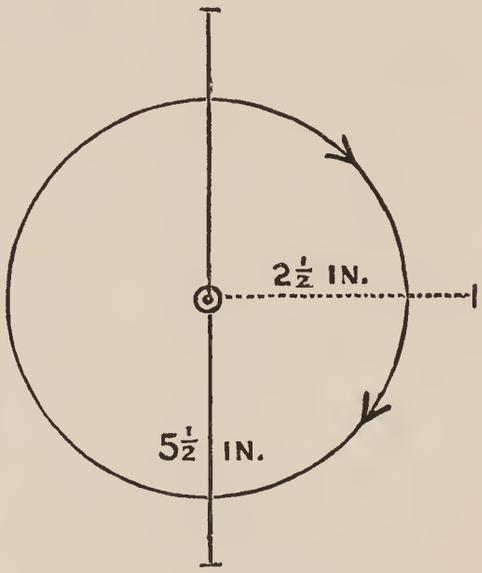
Instrument passing outwards from neck of bladder.
Rotation began at once.
„ 90° to patient's left at 2 inches.
„ 100° „ 3 „
„ 180° „ 4 „
No reversal of rotation.



Obs. IX.—February 18th, 1878.

Healthy.

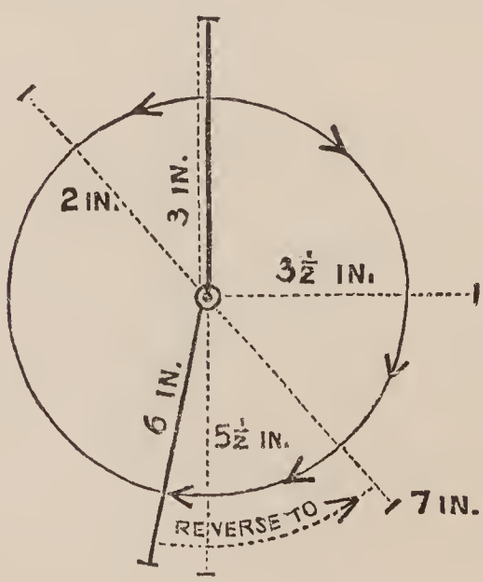
Instrument passing outwards from neck of bladder.
Rotation 90° to patient's left at $2\frac{1}{2}$ inches.
„ 180° „ $5\frac{1}{2}$ „



Obs. X.—

Same case as Obs. IX, but using a larger instrument.

Rotation slowly to 45°, patient's right at 2 inches.
„ to 0° at 3 inches.
„ 90° to patient's left at $3\frac{1}{2}$ inches.
„ 180° „ $5\frac{1}{2}$ „
„ 200° „ 6 „
Reversed rotation to 135° at 7 inches.



NOTE

ON THE

ANATOMY AND PHYSIOLOGY OF THE PHRENIC NERVE IN MAN.

By W. W. WAGSTAFFE, B.A., F.R.C.S.

During the course of teaching and examining I have been struck with the absence from most, if not all, of our text-books, of any notice or explanation of an important fact which appears obvious anatomically—the peculiar relation of the phrenic nerve to the anterior scalenus muscle. Our most generally used anatomical works ignore the fact that in passing over this muscle the phrenic nerve sometimes gives branches to it. This I have traced in several cases, but it is no doubt more usual for the branch of supply to the muscle to come from the fourth cervical nerve close to the origin of the main root of the phrenic. But whichever arrangement exists, the association of either the trunk or the root of the phrenic with the nerve-supply to the anterior scalenus is the fact I wish to emphasize, and the course of the nerve over the muscle must also in itself be looked upon as a fact of interest and importance. Those few anatomical authorities who mention the fact of branches to the anterior scalenus sometimes coming from the phrenic, either entirely omit a reference to its obvious physiological use as a motor nerve to this muscle, or lose sight of what appears an important physiological connection between the diaphragm and the anterior scalenus in respiration.

Even in standard physiological works I do not find a

satisfactory reference to this fact. Professor Michael Foster alone among English authorities gives any prominence to the special value of the scaleni in the mechanism of respiration, but even in his admirable work the meaning of the relation of the phrenic to the two extremities of the thorax is not satisfactorily enunciated. And in speaking of the effects of the division of the phrenic (in the rabbit) reference is only made to its influence on the diaphragm.

I have not the means by me of determining a point which would be interesting to notice, and this is how far the relationship of the phrenic to the anterior scalenus is common to animals having thoracic respiration.

Noting then that the phrenic in passing over the anterior scalenus may supply it with branches, and that its final distribution is to the diaphragm, we have, it seems to me, an important anatomical fact indicating the simultaneous action of the upper and lower ends of the respiratory apparatus—a mechanism which the ordinary bellows or concertina may roughly exemplify. The scalenus would fix and raise the first rib, from which the intercostals would work, probably external and internal, thus acting as elevators of the ribs and increasing the lateral capacity of the chest, while the diaphragm of course increases the longitudinal capacity.[1]

The course taken by the phrenic is suggestive of its physiological function on the muscles above indicated, and it would be of interest and value to notice the effect of injury or disease upon the phrenic between these two endings; such cases, however, are not easy to find. Some interesting cases are to be found in Le Gros Clark's paper just referred to, but in these the whole of the phrenic has been paralysed from injury to the cord, and we cannot distinguish the function of the phrenic as to its double supply.

I have to thank my friend Mr. Anderson for calling my attention to Henle's notice of one case, but one only, of branches coming from the phrenic to the anterior scalenus, and this case is given on the authority of Luschka. I shall be satisfied if this note calls attention to the fact, and suggests a satisfactory physiological explanation.

[1] Vide Le Gros Clark on the "Mechanism of Respiration," 'Proc. Roy. Soc.,' 1872, a paper too much overlooked.

THE INTRODUCTORY ADDRESS

OF THE

MEDICAL AND PHYSICAL SOCIETY.[1]

By W. B. HADDEN, M.D.,
ASSISTANT PHYSICIAN.

Mr. President and Gentlemen,—When I was invited to give the inaugural address of this Society I confess that I hesitated. My hesitation, however, sprang from no sluggishness of mind or distaste for the task which I should have to perform, but from a feeling of diffidence in addressing an audience such as the one I see before me. For I felt that it would be my duty to interest, or rather to try to interest, those who hold very different positions in the study of our profession. I should have to address myself to some who have as yet scarcely passed the threshold, to others who have only just realised the preliminary difficulties of their work, and to others again, who have emerged successfully from their trials and who are just about to launch into the practice of medicine.

Such were the difficulties that at once presented themselves to me, and I cast about in my mind as to the manner in which I could best meet them. I propose, therefore, to speak first of all of the relation between pathology and practical medicine and surgery; and next to sketch briefly

[1] "Pathology in its Relation to Practical Medicine and Surgery; also an account of the History of the Society," delivered October 20th, 1887.

the history, the aims, and the present position of this Society.

As regards pathology it may be urged justly that it requires no apology ; but what I am about to say is not by way of defence of the scientific basis of clinical work. Pathology requires no defence. Nevertheless, it is expedient that now and then the importance of pathology in its relation to practice should be brought into prominence. It is to be feared that there are some who really and unaffectedly despise the pathological basis of disease. Indeed, there exists a section of practitioners, the homœopaths, whose method has no solid scientific groundwork. They concern themselves with symptoms, not with disease, and by disease I mean the grouping of symptoms in relation to their intimate, that is to say, their pathological cause. It is not my intention to enter into a tirade against a body of practitioners, some of whom are honest, believing where they cannot prove. Apart from these brethren of ours, perhaps I ought to say these erring brethren, there are others who are too practical to be scientific. "No post-mortem examination in the world would shake my clinical experience of twenty-five years," I once heard a physician of some repute declare with engaging candour. Nevertheless, gentlemen, there are few, very few, who do not at times, often unwittingly, think pathologically. It cannot be denied that a diagnosis or a method of treatment based on a knowledge of pathology, uncontrolled by the dictates of clinical experience and of empiricism, is but a poor thing. Pathology when it once gets the upper hand is indeed a medical vice.

It will be my endeavour this evening to show you by means of illustrations, most of which are of comparatively recent origin, what pathology has done for practice, what it is still striving to do, and what it can never perform.

It may be said with confidence that the diagnosis of disease can never be considered precise until it receives a pathological confirmation. It is unfortunately too true that the type in medicine is not to be defined so readily and with such accuracy as in other physical sciences. The laws which govern the evolution of disease are probably not less certain than the laws of gravity or the atomic theory ; but the

guiding principles in disease so often escape our notice because they are the resultant of complex factors, some of which are still unknown, and some of which, when known, are misinterpreted. Therefore it happens that the individual has his own pathology. The broad rules of the science are modified by the idiosyncrasy, the taint, or even the temperament of the patient.

Let me call your attention in the first place to the question of cerebral localisation. Some years ago Dr. Hughlings Jackson observed that a peculiar variety of fits occasionally occurred in certain cases of brain disease. These fits began usually in the thumb, great toe, face, or some other definite part of the body; the convulsion tended to remain localised to the place in which it began; and consciousness was frequently retained throughout the attack. This observation was purely clinical; but examination after death showed that in such cases the lesion was limited to certain definite areas on the surface of the brain. This was really the first instalment of cerebral localisation, and its importance, great as it then appeared, has assumed a magnitude beyond all anticipation. Here clinical insight took lead, pathology followed, and experimental inquiry extended. Guided by this remarkable clinical observation by Jackson, verified as it was by morbid anatomy, Ferrier began a series of experiments with which his name is now so justly and so honorably connected. Of late, Horsley has succeeded in fixing even more accurately the various centres of voluntary movement on the surface of the brain. Mr. Ballance and myself have been engaged during the last few months in a similar line of investigation, and now we can declare with confidence that stimulation of one spot or other on the cortex will give rise to a movement of the thumb, or of the great toe, or of some other definite part of the body. Now, gentlemen, what has been the result of Jackson's clinical observation and of the facts of experimental pathology? We are at the present time in a position to deal by surgical means with certain intracranial lesions which lie on or near the surface of the cerebrum, and thus to avert a fatal issue in a class of cases which had hitherto been looked upon as hopeless.

But it is with regret that we have to confess that the precision which we may acquire in diagnosis by pathological means is often, very often, unaccompanied by any direct advance in treatment. Frequently during life we can predict with some exactitude a morbid condition of the heart, lungs, or liver; but we know too well that all our therapeutic agents are useless to eradicate the real disease.

But although we cannot restore a liver which has undergone structural changes from persistent abuse of alcohol, we can, and often do, relieve conditions which tend to threaten life. Over and over again a patient may be relieved of an ascites, and at length nature may step in to our aid, and a period of ease, extending over years, may follow. The exact conditions under which amelioration occurs when part of the organism is profoundly and permanently diseased are often beyond our knowledge. A more accurate understanding of the *vis medicatrix naturæ* is what we lack.

Why in certain rare instances does a cancerous mass dwindle and remain inert? Why does a cerebral tumour which seems likely to bring a patient to a speedy death occasionally become quiescent? Why does an ataxic so often suffer from fierce pains intermittingly when the lesion in his spinal cord is permanent? Let me take another illustration from nerve pathology. In most cases rigidity of the lower limbs, with exaggeration of the tendon reflexes, is accompanied by change in the lateral columns of the cord. And yet, as I myself have seen, lateral sclerosis may exist without rigidity and rigidity without lateral sclerosis. These are some of the problems still unsolved, and which offer a fruitful field for inquiry.

The remarkable discovery by Koch of the characteristic bacilli in the sputum of phthisical persons has marked an epoch in pathology. The presence of these minute bodies has given precision to diagnosis, and has often dispelled doubt in cases which would otherwise have remained obscure. These bacilli have been found in the synovial membrane of diseased joints and other states, which are even now sometimes termed—timidly, in my opinion—strumous or scrofulous. In the pre-bacillary period there was a strong suspicion that the strumous condition was in some way allied

to tubercle. We now know that tuberculosis may be a local condition, and, not only so, that it may be comparatively unimportant. I have on one of my fingers the remains of a wart, which at one time had a very characteristic aspect. It occurs among those who frequently are in contact with dead animal matter, such as dissectors, morbid anatomists, and butchers. I understand, and I believe it to be true, that the tubercle-bacilli have been discovered in these growths, which are therefore to be looked on as local tuberculosis from direct inoculation. This instance alone will show you how extended our views of tubercle have become since Koch's remarkable discovery. I think it may be asserted, without fear of contradiction, that the danger of tubercle lies not so much in its actual existence as in its localisation. We all know that the tubercular process may become arrested even in the lungs, where its ravages are so often progressive and fatal, and in the so-called strumous states retrogression is frequent. Under what circumstances, it may be asked, does this favorable termination take place? Again we have to confess our ignorance of nature's laws. But busy minds are at work on this point, and some day it may be that the baneful effects of tubercle may be as much under our control as the poison of syphilis.

Let me briefly bring to your notice the subject of new growths. It is impossible to over-rate the predominant *rôle* which pathology has played in modifying our ideas in relation to tumours. Here, again, pathology has given us precision in diagnosis, and has enabled us to speak with justifiable confidence in cases with which clinical experience is unable to grapple. A small warty nodule may to the naked eye appear innocent, and a thing to be neglected, but the microscope may exhibit the structure of a growth which tends slowly to invade surrounding parts, and eventually to destroy life. It is true that often the physical aspect of growths such as I describe may arouse our suspicion as to their exact nature; but the microscope dispels doubt, and enables us to deal boldly and with confidence with such conditions.

A mass of glands in the neck may excite apprehension by its clinical features, and we resort justifiably to an operation

for removal. But after removal the thoughtful surgeon has recourse to the microscope, so as to satisfy himself as to the malignancy or innocency of the growth. Thereby he is in a position to think pathologically, that is to say, rationally of the case, to gauge its probable course, and to allay the fears of the friends, or on the other hand to tell them firmly but gently that the issue is still doubtful.

It would be easy, gentlemen, to pursue this line of thought further, but I must pass on to the consideration of other practical relations of pathology. I have just pointed out how pathology may influence our prognosis of disease, and on this point perhaps sufficient emphasis has not usually been laid. What I have said in respect of diagnosis is applicable in great measure to prognosis. He who has a good knowledge of the pathological nature of disease can speak with more confidence as to the future than he who trusts to the fallacy of clinical experience, uncontrolled. Still, it is true that in many instances the gravity of a case may be measured by its clinical aspects, even when the underlying pathological conditions are quite problematical. For example, the continuance of a high degree of fever is an ominous symptom, and our apprehension is always the greater (because we dread the unknown) when the pyrexia cannot be referred to any cause. He can forecast the future best who tempers his clinical knowledge with the teaching of pathology, relying neither on one nor on the other, but on both.

I have already said that treatment has not always kept pace with our advancing knowledge of the causes of disease. It must not be forgotten though, that as we gain more accurate information as to the intimate nature of morbid conditions, so we are in a better position to neutralise them or to control their activity. Under the influence of preventive medicine typhus and relapsing fever have become rare in England, cholera seems to have lost its hold, and ague has been driven back step by step, so that now it exists as an endemic affection in but few districts in Great Britain. That the treatment of disease by drugs has not been directly advanced to any material extent by pathology is undoubtedly true, and this in the opinion of some is a reproach to science. If we regard treatment from the

narrow standpoint of the British Pharmacopœia, we are bound to admit the reproach. It is a curious reflection that most of our potent therapeutic agents, such as quinine, arsenic, mercury, iodide of potassium, and bromide of potassium are due simply to empiricism. But let me briefly notice one of the ways in which pathology has advanced therapeutics. Mercury has long been known to be the most powerful drug in the treatment of syphilis. Originally it was used for the outward manifestations of the disease, little or nothing being known of the influence of syphilis on the viscera and blood-vessels. Pathology, by its power of linking together morbid states, often very dissimilar clinically, has given a wider applicability to the remedies with which empiricism has furnished us.

Again, take typhoid fever. What the mortality from this disease was before its pathology was made clear will never be known, but it must have been enormous. When we remember that the slightest error in diet may lead to serious and often fatal results, it is simply appalling to think of the treatment of the past. In typhoid fever, then, we have an instance in which treatment has a basis purely pathological. And now, gentlemen, a few words in conclusion. My subject is one of such wide scope that I could do little more than allude to some of the relations of pathology to practice. Though what I have said has necessarily been imperfect and sketchy, my endeavour has been to impress on those who are pursuing clinical work the supreme importance, the absolute necessity indeed, of studying morbid conditions in the post-mortem room. I should like to see some attempts at original work in pathology on the part of some of our newly qualified men. Each year some of our students are bound by the regulations of the Universities to prepare a thesis for graduation. I speak with knowledge when I assert that in many instances the thesis is looked upon as a necessary evil, and consists simply of a few clinical histories with crude observations hurriedly put together. This does not apply to all, for I know of a few theses prepared by students of this Hospital which display a high degree of merit. There is no reason at all why pathology should not enter more largely into these theses; indeed there is every reason why it

should. Subjects abound which are still problematical and which offer a promising field to original workers. That some guidance is necessary as to the selection of a subject and as to the lines of investigation to be adopted is quite true; but I feel confident that help in this direction would be accorded most willingly by many of the hospital and school staff. Let me urge once more the value of studying disease in the post-mortem room. In private practice there are few opportunities for post-mortem examinations, and hence the knowledge of morbid anatomy acquired now will have to serve you for the future. Seize then every chance of comparing the symptoms observed during life with the conditions found after death, bearing in mind that by your errors you will learn much, by your successes little.

And now for a few minutes I will speak of a subject in which we are all deeply interested. I mean this Society. We cannot claim to be the oldest existing medical society in London; but this we can say, there is no older. It was in the year 1771, when Guy's and St. Thomas's were known as the "United Hospitals," that the Physical Society was founded. In 1826 St. Thomas's severed its connection with Guy's, and founded a school of its own, and with the school a debating society. So you see that the present Physical Society of Guy's Hospital and the Medical and Physical Society of St. Thomas's had a common origin in the year 1771, before the foundation of any of the existing medical societies in London.

I can tell you little about our Society between the years 1826 and 1841, as we have no minutes of that period. Mr. Le Gros Clark has given me some information, which seems to show that it was in a very disorganised condition, as, indeed, was the school at that time. He says, "The Society was then conducted, so far as my memory serves me, solely by the students. I think its reorganisation was due to the degeneration of the debates, not in energy, but in utility . . . . I think these meetings were not so satisfactory and improving as they might have been. They were used for ventilating imaginary novelties or fantastic theories, and the time was generally monopolised by a few who were less gifted with modesty than their fellows."

On December 13th, 1841, a meeting of the students was held, and among other resolutions passed was one which ran as follows :—" As the plans on which former societies connected with this hospital were conducted have proved inefficient, it is deemed advisable to form a committee who shall take the general subject into consideration in reference to the construction of a new society."

The basis on which the Society was reorganised is in the main that on which it now rests. Some of the original rules, it is true, were soon found to be impracticable.

By one regulation a fine of half-a-crown was imposed for absence from three successive meetings without reasonable cause, and the names of the absentees were read out at each meeting. There seems to have been some difficulty in enforcing these penalties, and hence a resolution was proposed by which members were to be excluded from the Society until the fines were paid. This was resented by the men, and an amendment was proposed and carried by a large majority. It ran as follows :—" That the fines be paid whenever the members liked to do so." The obnoxious rule was formally rescinded at the next meeting. The usefulness of the Society was hampered by another of the original regulations, which has now wisely been abolished. The election of members was by ballot, and two black balls in ten excluded. It is easy to imagine that men would fight shy of subjecting themselves to an ordeal such as this, being at the mercy of the caprice or malice of their fellow-students.

About two years after the foundation of the Society prizes for the best papers were introduced, and this custom continued until a few years ago. I cannot help thinking that we did right to abolish them. Every now and again the subject came up at our meetings, and there were heart-burnings and bickerings without end. In 1847 the feeling became so excited on this very question that the entire committee and one of the secretaries, as well as some of the members, retired from the Society altogether.

I think, therefore, the Society acted wisely in removing this bone of contention, and further there is no question

that the quality of the papers has in no way deteriorated since prizes were abolished.

The Society has not always been so flourishing and so popular as it is now. In past years it occasionally showed signs of decay, and this was due to causes which are now almost entirely remedied. In 1879 a select committee reported on this question, and their suggestions were in the main adopted. In order to enlist the sympathy of students of all grades it was decided to enlarge the scope of the subjects dealt with, so that scientific, social, and other questions which in any way bore on medicine might be treated. There was no doubt that many of the papers were too long and too abstruse to be popular, and some were of opinion that these faults were encouraged by the system of prizes.

It was at this period also that it was resolved that each reader should furnish a brief synopsis of his views for publication on the notice board, so that members might be better prepared to discuss the subject of the paper.

For many years we have had meetings set apart for clinical and pathological cases, and these meetings have usually been highly successful. More recently, men have been encouraged after the discussion at each ordinary meeting to exhibit any case of clinical or pathological interest. This in my opinion was an excellent departure, for it gave a real practical interest to a great number of men, it made the meetings less stiff and formal, and, better still, it fostered a spirit of original inquiry which would prove of incalculable benefit hereafter.

Some of the papers which were read years ago before this Society have become classical. Few here, probably, are aware that Jenner and Davy announced their great discoveries to the old Physical Society, and that the famous John Hunter himself used to take part in the meetings. To come to more recent times, let me remind you that in 1845 Rainey, who is well remembered by some of us here, brought forward before this Society his remarkable investigations into the minute anatomy of the human lung. I could mention others, now with us, who have contributed papers of the highest merit and originality. But highly as we appreciate the value of independent research, the popularity

of this Society depends more on the suggestiveness, perhaps I may say the combativeness, of the papers than on their originality.

The objects of a society like ours are to bring out the observing powers, to encourage the expression of opinion in public, and to call forth the spirit of honest but kindly criticism. Briefly, what is aimed at is the faculty of thinking and speaking coherently. I see that the list of papers for the session is entirely filled up, and that in itself indicates the vitality of our Society. I confess that personally I should have liked to have seen the younger students more to the fore. There are many social and scientific questions which have an interest for us and with which junior students are fully competent to deal. The papers for this session seem to me to be material of the right sort, and some of them are sure to excite discussion of the liveliest kind.

Let me briefly allude to some of those who, by their energy, self-denial, and ability have contributed to make this Society what it is. Solly, Benjamin Travers, jun., Grainger, Marshall Hall, South, Peacock, are all now dead. Barker, Risdon Bennett, Le Gros Clark, Simon, Wagstaffe, are still with us, though no longer actively connected with our hospital. Of our present staff, the Society is especially indebted to Dr. Bristowe, Mr. Croft, Mr. Clutton, and lastly, to Mr. Anderson, who has for many years evinced a very lively interest in our proceedings.

We owe much to our secretaries, in whose hands the success of the Society is mainly entrusted, and let me (without mentioning names) ask you to remember their valuable services with gratitude. And now, gentlemen, I have finished. Our Society has been made and sustained by men whose names are as household words in our profession. It is for you to make the future worthy of the traditions of the past, and for the future I myself have no apprehension.

CASES

OF

ACUTE DELIRIUM OR ACUTE DELIRIOUS MANIA.

By R. PERCY SMITH, M.D., M.R.C.P.,
ASSISTANT MEDICAL OFFICER TO BETHLEM ROYAL HOSPITAL.

THE following cases seem to me suitable for publication in the 'St. Thomas's Hospital Reports,' from the fact that they belong to a class instances of which come frequently under the notice of general physicians and general practitioners as well as of physicians whose experience lies chiefly in lunacy, and that the severity and fatality of the disease is frequently overlooked till too late from want of familiarity with its symptoms and course.

Further interest lies in the fact that many such cases present at first some difficulty in diagnosis, the aspect of the patient bearing a close resemblance to what is seen in the typhoid state in the course of fevers or other acute diseases, while in some cases there may be considerable elevation of temperature. The name "acute delirious mania," which is frequently used, seems to imply that maniacal symptoms form the basis of the disease, and while there is no doubt that there are cases intermediate between those presenting the extreme prostration and often rapidly fatal result of acute delirious mania and severe cases of ordinary acute mania, yet the very marked clinical

differences between typical cases of the former and the latter almost justify one in regarding the disease as something apart from ordinary acute mania. And, further, there are cases in which the mental condition is one of depression leading rapidly to a low form of delirium, and which therefore ought to be called acute delirious melancholia. A better and more comprehensive term, therefore, is "acute delirium," the "délire aigu" of French writers.

Cases of this sort were described by Dr. Bell in 1844, hence the name "Bell's disease" which has been used. Bell himself used the term "typhomania." Dr. Blandford describes such cases under the name "acute delirious mania" ('Insanity and its Treatment'). Dr. Clouston ('Mental Diseases') regards "delirious mania" as a third stage of acute mania, the first two being "simple mania" and "ordinary acute mania." He further states: "The third, under proper treatment of the first two stages, does not occur in many patients." With all deference to so eminent an authority, I would submit that many cases suffer from acute delirium or acute delirious mania from the outset, in spite of any treatment, the attack resembling in its severity the onset of a fever or acute local disease. Spitzka ('Insanity') makes use of the term "delirium grave," and lays great stress on the severity of the disease and its frequent fatal ending, and also points out that, clinically, the mental symptoms resemble "the highest degrees of maniacal fever and melancholic frenzy." He goes so far as to say that complete recovery never occurs. This I shall hope to show is too sweeping an assertion. Dr. Savage ('Insanity') makes use of the term "acute delirious mania," and gives in parallel columns its symptoms and those of acute mania. During the last two years I have had opportunities of seeing sixteen cases of this nature in the wards of Bethlem Hospital. In seven of these the disease had lasted less than a week on admission, and in four others less than a fortnight, showing the rapid onset usual in such cases; four of the remaining five had been ill for three weeks, and one for two months. Six cases died, six recovered completely, two others (alcoholic cases) were discharged recovered, but were perhaps somewhat odd in manner as a result of their illness. One was discharged recovered, but with the reservation that possibly his attack was

the forerunner of general paralysis, and one still remains under treatment in a rather prolonged stage of weak-mindedness resulting from the severity of the attack.

Thirteen patients were of the female sex, this preponderance agreeing with Spitzka's observations. The average age in the female cases was 36, the youngest patient being 25, and ten of the cases ranging between 25 and 38 years of age. The ages of the three men were 27, 36, and 40 years respectively. From this it is evident that the disorder belongs almost entirely to the period of life which is most subjected to strain.

With regard to inheritance six had insane relatives, and two of these had phthisical family history as well. In one there was a history of asthma and in one of cancer in the family. In the remaining eight nothing of importance was found.

Nine of the female patients and one male were married, and four females and two males single.

Dr. Savage points out that there is nearly always a definite cause in these cases, as well as frequent insane inheritance, and in all I have had an opportunity of seeing, this has been so.

The puerperal state accounted for the disease in three cases, one patient having been recently delivered of her tenth child at the age of forty-five, and in the other two the deaths of near relatives at or about the time of her confinement had acted as emotional shocks.

In one woman an attack of measles while suckling, five months after confinement, was the immediate cause, and another, who had had nine children in rapid succession, broke down while still suckling her youngest child, aged nine months, having been for some time in a state approaching nervous exhaustion.

Domestic anxiety and pecuniary difficulties alone seemed to be the cause in three married women, and in one the shock of the death of a relative (not associated with another cause, as in the two mentioned above).

As physical causes acute cystitis in one case and severe diarrhœa and vomiting in two other cases must be mentioned, as well as the attack of measles spoken of before as associated with lactation, while in the remaining female case the history pointed to diabetes, although no sugar could be found in the urine while the patient was in the hospital, this being

perhaps an instance of alternation of neuroses spoken of by Dr. Savage.

Of the three men, two of the patients owed their attack to alcoholic excesses, while the other had lost a relative of whom he was very fond. His attack suggested in some ways the onset of general paralysis, but he recovered and is still well. This may be, however, merely a remission.

While mentioning the causes of acute delirium in the above cases, it may be as well to speak of another patient whom I have not included in my list, as on admission to Bethlem Hospital he was suffering from dementia. This, however, had followed acute delirium, which had resulted almost immediately after an operation for the relief of strangulated hernia under an anæsthetic. The patient was seen by Dr. Savage in St. George's Hospital, was then and for some weeks a typical case of acute delirium or acute delirious mania. It would appear from this case and some others which occur from time to time that anæsthetics may possibly give rise to an attack of insanity similar to that produced by alcoholic excesses.

The symptoms of this disease are so well described in text-books on insanity that it seems superfluous to recapitulate, but I would venture to sum them up briefly, as with many of those who are not daily seeing insanity the text-books on that subject, once read, are not often consulted afterwards, and cases similar to those forming the subject of this paper are consequently regarded as "obscure cerebral disease" or "brain fever," instead of being looked upon as acute cases of insanity.

These cases are, in fact, upon the borderland where general medical practice and lunacy practice meet, and as I said at the outset, are not unfrequently met with in the wards of general hospitals, where those due to an alcoholic cause or following operations are the most frequent examples.

The symptoms and progress of the disease, then, are as follows:—In some cases there may be a very short period of depression, especially if the cause be a mental or moral shock or great anxiety, and this will be associated with sleeplessness, headache, and restlessness; then may come on an outburst of excitement, which may be regarded by the friends as hysterical, but passing very rapidly into a state of acute delirium.

The excitement may, however, be the first symptom; in fact, according to Dr. Blandford, the patient "may awake out of sleep and at once become delirious." The excitement may now become extreme, or there may be acute melancholic agitation, but in whichever way the attack begins the patient soon passes into a condition resembling the acute delirium of a fever. He or she has constant hallucinations of sight and hearing, with constant incoherent chattering, extreme restlessness, and almost complete absence of sleep.

The tongue is usually thickly coated at first, and rapidly becomes dry.. The throat and mouth are parched, and food is generally obstinately refused, perhaps from the idea that it is poisoned, perhaps from pain and difficulty in swallowing; the condition of the throat further renders artificial feeding difficult and painful.

The face is flushed and eyes bright, the pulse rapid and feeble from the first. Eroticism is not uncommon, the bowels are usually confined, and the urine scanty and high coloured, and passed involuntarily. The temperature is very variable; in some cases there will be found to be no rise at all, and it may be even subnormal. Usually, however, there is a rise of 1° or 2° in the evening, and in some cases the temperature may reach 103° at night. There is, however, no regular course in the fever, the chart showing very irregular rises and falls.

After a few days of this condition the patient may pass into what is called by Spitzka the second stage of the disease. In this the patient's excitement gives way to prostration, and he passes rapidly into the typhoid state, lying with dry brown tongue, sordes on lips and teeth, and constantly muttering or picking at the bedclothes. Bedsores may form, in some cases coming on rapidly as acute trophic lesions, and in other cases there may be acute wasting of muscles with loss of reflexes, and perhaps followed by contraction of limbs.

In cases that recover the patient does not usually get as ill as this, the effect of food and stimulants during the first few days sometimes acting almost magically, the tongue cleaning, and sleep being restored. In one of the cases reported below, however, the patient was for some time almost at the point of death, but eventually made a good recovery.

Many cases, however, progress to a fatal result in spite of the most careful feeding and treatment, a temporary apparent improvement raising delusive hopes which are soon dispelled by the steady failure of the heart's action, general apathy on the part of the patient, coma and death. Other cases may recover from the delirious stage very rapidly, although being very ill at first, and then pass into a long period of weak-minded apathy before complete recovery, or there may be permanent dementia. In some cases the attack appears to be preliminary to general paralysis. Memory of the attack is usually almost entirely obliterated.

The post-mortem examination, as a rule, gives no evidence of gross disease of the brain; there may or may not be marked congestion of the cerebral vessels. According to Spitzka the nerve-cells show cloudiness, and he thus distinguishes the disease from ordinary acute mania in which no morbid appearances may be found. In one fatal case at Bethlem Hospital the nerve-cells seemed to be normal, but there was great injection of the vessels, and many of the small arteries appeared to be dilated and moniliform on longitudinal section, probably from the knife cutting a tortuous vessel at different bends. In one case there were signs of old-cured peritonitis, and in another the uterus was much enlarged from recent delivery, and contained shreds of mucous membrane and thin turbid discharge. There is generally hypostatic congestion of the lungs, and perhaps actual consolidation.

The treatment depends very largely upon the severity of the case and the capacities of the patient's home surroundings.

Some of the milder cases can be treated at home provided there is provision for constant nursing, and a large airy and quiet room, which should be darkened. The nurses should be skilled in feeding artificially if necessary. The great expense of this will of course drive many cases into hospitals and asylums, and it depends largely upon the amount of initial excitement into which of these the patient is taken. Cases which are so excited that they need constant holding or handling by attendants or nurses are better treated, whether rich or poor, in an asylum, where a padded room allows the patient a certain amount of liberty without damage to himself. Moreover, in an asylum it is possible to get the patient out into

the air as soon as he is strong enough without his appearance exciting comment or attracting notice, while this is out of the question in an ordinary hospital, or in the gardens attached to most houses in London or large towns. In many cases the friends will utterly object to the idea of an asylum, and will sooner have the patient treated in an unsuitable room, or held down constantly, or knocked over by narcotics rather than allow his removal.

The main indications are to support the patient's strength by sufficient food, and, if necessary, stimulants, and if the sleeplessness be persistent to treat it. With regard to feeding, if the patient will take solid food let him have abundance of it in a form which does not need mastication, such as mincemeat or similar preparations, as there is often in conditions of extreme excitement a tendency to bolt food. If, however, as frequently happens in these cases, the patient absolutely refuses food he must be fed artificially perhaps several times a day, milk and eggs forming the staple articles of diet. The disease is one tending to rapid exhaustion and failure of cardiac power, and therefore the administration of stimulants is nearly always necessary. The argument is often used, by those not used to such cases, that the patient is suffering from "brain fever," and that stimulants will make the condition worse, but this is not found to be the fact clinically, whatever may be the pathology of the disease, and stimulants are as much necessary in these cases as in the typhoid state in fevers or pneumonia. Moreover, their administration may cause the patient to sleep in some cases, and do away with the necessity of giving narcotic drugs. Brandy up to four or six ounces per diem is generally necessary in severe cases; in some, however, bottled beer will act beneficially. In alcoholic cases the same question arises as in ordinary delirium tremens, and general medical principles should apply here as there, that is to say, give stimulants if the heart's action be failing, but do not make a rule to pour in stimulants in every case indiscriminately.

With regard to narcotics, the rule of treatment at Bethlem is to avoid them if they can be done without, but if the sleeplessness is persistent and does not yield to feeding and stimulants, chloral and bromide of potassium are to be preferred to opium or morphia, or some of the newer hypnotics, such as

paraldehyde or hypnone, may be tried. Both of these are unpleasant to take; the latter, however, can be given hypodermically in ℿv doses and acts well.

In cases which are wearing out life with extreme restlessness or agitation, mechanical restraint in the form of either the dry or wet pack is sometimes useful; the latter is at the same time a sedative and may produce sleep.

I have selected the following cases as illustrations of this condition.

Case 1. *Acute delirium resulting from domestic anxiety; recovery.*—S. S—, æt. 32, wife of a corndealer, five children, youngest aged sixteen months; failure of business by husband given as the cause. No insane inheritance, subject occasionally to "hysterical" fits, and catamenia generally irregular. The attack began about three weeks before her admission to Bethlem Hospital (March 7th, 1885), with severe headache, restlessness, anxiety about home affairs, neglect of family and refusal of food, and five days before admission she became violent, talkative, incoherent, and had constant hallucinations of sight and hearing. On admission she was so feeble that she could not walk, and was rambling and muttering. Her tongue was thickly furred but moist, and breath offensive. Pulse 126, small, and feeble; temp. 100·4° F. No visceral disease. She was at once put to bed and fed with a spoon.

During the next few days she was fed constantly with fluid food and stimulants, and by March 24th was able to sit up and answer questions, and was out of danger, though still confused. No narcotics were given, as it was found that she slept after food.

The temperature never again reached 100°. In another month she was well enough to go to our convalescent hospital, and was eventually discharged well, having made a most satisfactory and rapid recovery, considering her serious condition on admission.

Case 2. *Acute delirium following death of a relative; death.*—E. M. D—, æt. 29, single, of no occupation, admitted May 26th, 1885. Mother died of cancer, no insane or neurotic inheritance. In 1878, she had been depressed after a love

disappointment. Two months before admission she became depressed after the death of an uncle, and eight days before admission she became "hysterical" and then passed into wild excitement, being destructive and suffering from hallucinations of a terrifying nature, such as devils and blue lights. She believed also that 50,000 men were sitting upon her. There was no reason to suspect alcohol as a cause of the attack. She at first took food ravenously, but had refused it for two days before admission. On admission, she was extremely noisy, chattering, incoherent, dirty, and sleepless, and refused food absolutely, needing artificial feeding. Her temperature was normal, and there was no visceral disease. The tongue was dry and brown. In six days she was well enough to be up, and was taking food. In two more days, however, she became weaker and the tongue again dry and brown, diarrhœa set in, and she passed into a comatose condition and died nine days after admission.

In this case no narcotics were administered as sleep followed feeding, but stimulants were given from the first. No post-mortem examination was allowed. This is an illustration of the temporary fallacious improvement that may occur.

Case 3. *Acute delirium following diarrhœa; recovery.*—V. G—, æt. 29, single, of no occupation, was admitted June 18th, 1886. No neurotic inheritance; no history of any previous illness. Seven days before admission, after an attack of diarrhœa, she became hysterical and then delirious, with constant chattering and great violence. She believed she had been confined, used blasphemous language, and refused food. On admission her temperature was 100°, tongue dry and cracked, pulse 130, very feeble, and general condition very weak and exhausted. She was incoherent and somewhat noisy, but remained in bed and took fluid food. In three days she was so much better that she was allowed up. She made a rapid convalescence. No narcotics were administered. On admission there was nothing to show that she would not get rapidly worse, and the case is illustrative of the rapid recovery sometimes seen in this disease.

Case 4. *Acute delirium following long indulgence in alcoholic excesses; recovery.*—T. A. B—, æt. 27, single, button maker,

was admitted November 13th, 1885. There was no insane inheritance and no history of previous illness. Alcoholic excess was at first denied, but after the patient's recovery he acknowledged long-standing and extensive alcoholic excess. The attack began only five days before admission with incoherent talking, suspicions, and hallucinations of hearing and general intellectual confusion, with sleeplessness and restlessness. On admission, he was acutely delirious, with great tremor of muscles, flushed face, perspiring skin, and dry, thickly furred tongue. When seen in bed his aspect was very like that of a patient with typhoid fever, and to add to the resemblance, his abdomen was tumid and tympanitic and rather tender and the motions were pale and offensive. The temperature, however, was normal both morning and evening. The pulse was rapid (120), full, and bounding. He was fed with abundance of liquid food and four ounces of brandy daily. In the facts of great tremor and terrifying hallucinations, such as the belief that he had rats inside him, his illness resembled somewhat ordinary delirium tremens. In a fortnight he was sufficiently well to be allowed up; he remained, however, very tremulous, with loss of memory and a certain amount of weak-mindedness till two months after admission. He was eventually discharged well.

Case 5. *Acute delirium following alcoholism; alcoholic paralysis; recovery.*—L. E—, æt. 40, single, canvasser, admitted to Bethlem Hospital December 15th, 1885. No insane inheritance. Was said to have been kept in the house a good deal by varicose veins for a few months before admission, but as none of any size could be discovered on admission it is probable that he had had some loss of power and pain in the legs due to alcohol, and that he interpreted this as due to varicose veins. He had undoubtedly been in the habit of drinking a very considerable quantity of whisky daily.

His illness began four days before admission with great exaltation developing quite suddenly, with ideas of great wealth and of being in heaven. The day before admission he became very violent, wild, and incoherent.

On admission, he was extremely weak and had to be put to bed, where he lay muttering incoherently and indistinctly, with

continuous tremor of lips and limbs. His knee-jerks and surface-reflexes were brisk. The temperature was normal on admission; pulse 90, very weak and soft.

Two days after admission he became worse and was extremely weak and restless; he had incessant twitching of the left side of his face and clonic spasms of both arms. His speech was quite blurred and incomprehensible, and he could not be roused by any stimulus, auditory, visual, or tactile. He had to be fed with the stomach-pump. He remained in this condition for some days, his tongue becoming dry and brown, and it appeared as if he would die at any moment. A rapidly spreading bedsore appeared over the sacrum, and blebs on the hips and heels, in spite of the greatest care in nursing. With this his temperature rose to 102·4°, but his mind now became clearer, and he took food well. He was constantly calling for brandy and seltzer. His memory for recent events was quite defective.

By December 28th he had improved sufficiently to be able to sit up, his sores were healing, and the tremor was disappearing, but he was unable to stand. For some time after this he was troubled with hallucinations of hearing, but steadily improved mentally, and by the middle of January seemed mentally convalescent, but his legs were painful to touch, wasted, powerless, and somewhat contracted. This condition lasted for some months, but with increase of strength and diminution of contraction daily, and by May 12th he could just stand. He was then discharged well from a mental point of view, and went into St. Thomas's Hospital under Dr. Bristowe's care for his loss of power.

In July he left the hospital, able to walk fairly well. When last heard of he was well mentally, but his legs were still somewhat weak.

In this case food, stimulants, and careful nursing were relied upon. No narcotics were administered throughout the delirium, which certainly merited Spitzka's nomenclature "delirium grave," and yet was recovered from.

Case 6. *Acute delirium, supposed to have followed cystitis; death.*—E. J—, æt. 49, housewife, admitted May 12th, 1887. No insane inheritance, no previous illness till cystitis, which

is said to have commenced April 23rd, but for which she was not treated till four days before the attack of delirium commenced (nine days before admission). The attack was characterised at first by incoherent raving and shouting, rolling on the floor, and refusal of food.

On admission, she was greatly exhausted and emaciated, lying prostrate on her back and absolutely refusing food. Pulse almost imperceptible; temp. 99°. No visceral disease detected. Urine could not at first be saved, but when examined was found to be acid, and though turbid showed no distinct signs of cystitis. She was from her admission fed several times daily with the stomach-pump, the diet consisting of milk, eggs, and brandy. The tongue became dry and brown, and she became semi-comatose. Four days after admission she appeared to be better, recognised people, and swallowed voluntarily. The improvement, however, did not last, and she relapsed the same day into coma, crepitation was heard at the base of the lungs, and she sank and died. No post-mortem examination was allowed. In this case the most careful feeding seems to have been of no avail, and the term "delirium grave" was certainly applicable.

In addition to the above-mentioned cases observed at Bethlem Hospital, Dr. Ord has kindly allowed me to make use of the following one, which has been under his care in St. Thomas's Hospital, and which I have briefly summarized here as an instance of a case of acute delirium due to alcohol, and followed by alcoholic paralysis, treated throughout in the wards of a general hospital. The case is in many respects similar to that of L. E— (Case 5), the fact of the delirium being less violent at the onset rendering it unnecessary for the patient to be sent to an asylum.

C. R—, æt. 24, barmaid, admitted into St. Thomas's, September 13th, 1886. No insane inheritance known; mother died of "paralysis of the arms."

Patient had been married eleven months and had had a doubtful miscarriage, had been in the habit, when at the "bar," of drinking port wine and gin in the evenings.

Three months before admission she had pains in the body, feet, legs, and arms; and three weeks before admission she

became delirious. On September 2nd she lost power in her arms.

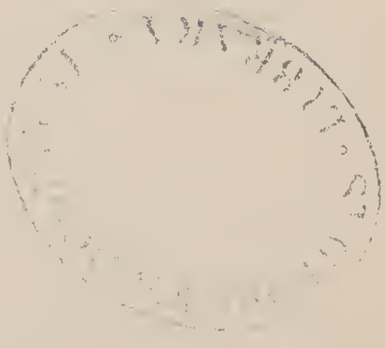
On admission, she was emaciated, wild-looking, and muttering incoherently, her voice was a thick whisper, she was unable to sit up and made irregular movements on attempting to use her limbs. The pulse was 128, thready; tongue dry, and respiration irregular. She resembled very closely the cases I have described above.

She was treated with fluid food and stimulants, with chloral and bromide of potassium for sleeplessness. The temperature was only occasionally very slightly raised.

It was noted after some little time that she had albuminuric retinitis, but no albumen could be detected at first in the urine.

By October 2nd, she had improved mentally but as in the case of L. E—, hallucinations were then noted. Subsequently she improved mentally and is now in hospital still under treatment for alcoholic paralysis.








THE BLOOD IN PERNICIOUS ANÆMIA.[1]

By S. M. COPEMAN, M.A., M.B.Cantab.

In 1855 Addison described a severe form of anæmia which has been "variously designated as pernicious, malignant, idiopathic, and progressive, on account of the intensity of the symptoms, the obscurity of its pathology, and the frequency with which it advances to a fatal termination," but Dr. Byrom Bramwell appears to have been the first to call attention to the peculiar changes in the constitution of the blood which are characteristic of this affection. The disease is found in both sexes, generally in individuals of middle age, and seems specially to affect women after pregnancy.

In the 'Medical Times and Gazette' for November, 1874, Dr. Bierner, of Zurich, says that in five years he met with fifteen cases of this affection in patients varying from eighteen to fifty-two years of age, the majority being women. It frequently followed chronic diarrhœa, and child-bearing seemed specially to predispose to it. His account of the symptoms is as follows:—Those affected became extremely pale, and the skin of their hands, feet, and face acquired a swollen look. They became weak, had fits of giddiness and palpitation of the heart, the appetite failed, and there was a feeling of

[1] A paper read before the Medical and Physical Society on February 17th, 1887.

pressure in the pit of the epigastrium. Transient diarrhœa often occurred, and there were attacks of feverishness without the fever assuming any particular type. Anæmic murmurs were sometimes present of such intensity that organic disease of the heart was suspected, but none was ever found after death. With all these symptoms it is a very remarkable fact that no actual diminution of the fat covering the body could be made out. As the disease progressed ecchymoses appeared in the retina, even though vision remained intact. Sometimes there were small petechiæ under the skin, and less frequently hæmorrhages took place from the nose and kidneys. Transient paralyses were probably due to small hæmorrhages into the brain-substance. Towards the end of life dropsy set in, and delirium also occurred. The course of the disease was always chronic, and the termination always fatal.

The necropsy invariably showed a partial fatty degeneration of the papillary muscles of the heart, and fatty degeneration of the smaller blood-vessels of various organs.

No treatment was of any avail.

In the 'Edinburgh Medical Journal' for November, 1877, Dr. Byrom Bramwell, of Newcastle, publishes reports of eight cases which occurred in 1875-76. Of these six were males and two females, and in both the latter pregnancy was put down as the supposed cause, while in two of the men it seems to have followed on yellow fever. Retinal hæmorrhages were present in all the cases, and the blood, when examined, showed very marked changes, the red corpuscles being fewer in number than normal, of all sizes and shapes, and not running into rouleaux, while some were apparently nucleated. The treatment adopted was iron, quinine, lime-juice, cod-liver oil, and arsenic, and it is a fact worthy of remark that all the cases treated with this latter drug recovered, while the others all died. Dr. Bramwell explains that in the first two cases the drug was used empirically, he not being then acquainted with the post-mortem appearances, one of the most important of which appears to be a fatty degeneration of the heart, in which it is, he says, especially useful, and quotes Dr. Anstie, who considered it a most valuable blood tonic.

With regard to the pathology of the disease, Cohnheim and others have found that in certain cases the marrow of the long bones is of a deep red or purple instead of the normal yellow tint, this change being caused by the presence of large numbers of cells resembling what have been termed "intermediate" corpuscles, *i. e.* corpuscles like the ordinary white corpuscles of the blood, but tinted with hæmoglobin. This change in the marrow was considered to be the starting-point of the disease, but unfortunately for this hypothesis, Eichorst and others have in some cases found the bones perfectly healthy, and it is probable that this change when observed was the consequence rather than the cause of the disease. A second view is that advocated by Dr. Fenwick, in two papers, in the 'Lancet' for July 7th and 21st, 1877. He considered that the primary lesion was atrophy of the stomach, particularly of the gastric glands. In the face of this it is strange that observers make a point of there being no emaciation in this disease.

Quite recently Drs. Reyher and Runeberg have read papers to prove that in some cases at any rate the cestoid worm, *Bothriocephalus latus*, was a cause of pernicious anæmia. Dr. Reyher observed the connection in twelve out of nineteen cases, and was able to cure his patients by the free use of anthelmintics, together with arsenic and iron. The bothriocephalus is, however, often met with in great abundance without inducing any general symptoms, and in these cases the two things may have existed together, the anthelmintics clearing out the worms, the arsenic curing the anæmia.

The statements of various observers with regard to the changes which take place in the blood have been equally conflicting, although the appearances first described by Dr. Bramwell seem to have been, in the main, confirmed; and accordingly when, last year, four cases of pernicious anæmia were admitted into the wards of St. Thomas's Hospital, under the care of Dr. Bristowe (curiously enough, all at about the same time), I seized the opportunity of examining the blood on a number of different occasions with the results narrated below.

The clinical history of these cases is briefly as follows:—

Case 1.—A single woman, æt. 27, who eleven years previous to admission had had rheumatic fever and pericarditis, for which she was treated by Dr. Sharkey. For nine months jaundice had been coming on, although the fæces remained normal in colour. The catamenia had not appeared for the same length of time. The patient was very anæmic, the skin being yellow and moist. The area of cardiac dulness was somewhat increased, and the second sound at the base reduplicated on the left of the sternum. There was considerable pain in the right hypochondrium.

The stools contained abundance of bile, while there was no trace of bile-pigment or acids in the urine.

From the time of admission onwards there was for some time an evening temperature averaging 101°, and never falling below 99·2°.

After a month in the hospital there was a sudden rise to 103° F., accompanied by much pain in the cardiac region, and a faint systolic murmur was found to have developed at the apex. The patient complained on several occasions of pain in the long bones, which were found to be tender on pressure.

About six weeks after admission the eyes were examined by the then house physician Mr. Hutton, who found optic neuritis present in both discs, which were reddened, enlarged, swollen and hazy. There were also a number of retinal hæmorrhages. I examined the blood, which was pale and coagulated rapidly, containing an excess of fibrin. The red corpuscles numbered only about 36 per cent. of normal, and on allowing the blood to dry the corpuscles broke down, and hæmoglobin crystals were formed.

In consequence of these conditions of eyes and blood, Liq. Arsenicalis, ℥x, t. d. s., was given on the supposition of pernicious anæmia. Improvement commenced at once, the patient feeling better, although for a time the anæmia seemed even more marked. There was no apparent loss of flesh. Before another month had elapsed the retinal hæmorrhages were becoming rapidly absorbed, those seen, four or five in number, being very ill defined and pale. The blood had also much improved, the red corpuscles being larger, of more uniform size, of better shape and more coloured, the number being now 60 per cent. of normal. They still did not run into

rouleaux, but seemed to adhere together by their edges. They no longer broke down when the blood was shed, and consequently no crystals could be obtained.

The patient went out three months after admission, having made steady progress towards recovery from the time that she was put upon arsenic.

This case is of interest more particularly as pernicious anæmia was not at first suspected, the symptoms on the patient's admission being considered to be due to gall-stones, while there was also at first some suspicion of syphilis. The jaundice was certainly more marked than it usually is in these cases, but at the same time there was never any absence of bile from the stools, and no biliary constituents were detected in the urine. The fæces were carefully examined for gall-stones, but none were ever found.

Dr. Bramwell in his papers makes a point of the occasional appearance of mild attacks of pyrexia, but in this case fever was more or less constant, the temperature remaining persistently above normal, reaching 100°—101° every evening for the first two months of her stay in the hospital.

Case 2.—A leather finisher, æt. 32, admitted February 10th, 1886, with a history of rheumatism five years previously, and frequent attacks of epistaxis for the past four years; a history also of syphilis. He complained of palpitation and cold chills, with heavy sensations in the head. The skin was of a pale yellowish colour, the conjunctivæ very anæmic, but apparently not jaundiced. There was a blowing systolic murmur at the apex, conducted into the axilla, and a faint double murmur at the base. Temp. 100° F.

The *urine* for three weeks after admission contained about one twelfth of albumen, but no casts. On examining the eyes the optic discs were very pale, there being marked red and black stippling of the choroid, but no hæmorrhages. The eyes were subsequently examined on several occasions, but none were found.

The *blood* was much impoverished, the red corpuscles being present to the extent of 48 per cent. of the normal number only. They were mostly undersized, light coloured, and did not run into rouleaux. There were present a

number of small highly-coloured corpuscles about two microns in diameter, a few being apparently nucleated. When the blood was shed the red corpuscles did not break down, but their colouring matter was extruded in an amorphous form. Their consistence, however, appeared to be lessened, some being of an oval or pyriform shape. The white corpuscles were about normal in size and number.

About a month after admission a swelling appeared over both tibiæ, painful on pressure, and aching at night, and the patient said that similar swellings had been present two years before. The blood was examined several times, very similar appearances to those noted above being found on each occasion.

The patient gradually improved, and on May 8th was discharged cured, but has just lately been readmitted in about the same state as at first.

Case 3.—A woman, æt. 33, who had never been well since her confinement nine years previously. She complained of almost continuous pain in the flanks, and vomiting when the pain was acute, together with shortness of breath and general debility. She appeared fairly nourished but was very anæmic, the skin being a pale-brownish yellow. Both liver and spleen were enlarged and tender. The long bones throughout the body were tender on pressure, the tibiæ especially so. No enlarged glands could be felt.

The ophthalmoscope showed marked red and black stippling of the choroid in both eyes. Several patches of hemorrhage lying beside the veins were seen in the left eye, but none were visible in the right. There was no neuritis.

The house physician notes: "The blood is pale and thin, no increase of white corpuscles. The red are irregular in shape, for the most part oval or pyriform, and are smaller than normal, but there are some even larger than those found in health. In parts, the colouring matter seems to have separated out from the corpuscles and to lie in red lines between them." I afterwards found the percentage of red corpuscles to be 47 of normal. Temperature 100·6°.

Later on some œdema of the face and eyelids was noticed, followed by a swelling of both legs, which gradually passed off, and under the administration of arsenic the patient improved greatly in colour and appearance, the change for the better in the state of the blood also being very noticeable when she was "presented," after a stay of a couple of months in the hospital.

Case 4.—A brewer's man, æt. 57, admitted into George Ward in February, 1886. Total abstainer for the last six years. Some time ago had rheumatism. Now was complaining of continuous diarrhœa, which had followed on an attack of vomiting, lasting with intervals for a fortnight, the attack being unaccompanied by headache or pain of any kind. Patient was pale, emaciated, and aged looking, the skin being very pale and dry. No eruption. Temperature 100° Fahr.

Several retinal hæmorrhages were noticed in the eyes, being most numerous along the vessels running upwards. The house physician found the blood-corpuscles diminished in number, pale and irregular in shape.

No albumen in urine; no œdema. After admission the temperature was found to be always subnormal in the morning, ranging from 96·4°—97·6° F., while in the evening it was normal or slightly above.

I examined the patient's blood, and on counting the red corpuscles with the hæmocytometer found about 40 per cent. of the normal quantity. They were of very irregular shape and size, for the most part pale, some, however, which were very minute, were dark coloured. The white corpuscles were slightly increased in both size and number, there being in addition a quantity of minute masses of colourless protoplasm many times smaller than a normal red corpuscle. The deeper colour of the smaller red corpuscles appeared to be due to a concentration of the contained pigment towards the centre. The blood was light coloured and fibrinous. On drying specimens rapidly on a slide, by spreading out the blood with a needle, the corpuscles readily broke down into a uniformly granular-looking mass, in which there was little or no colour visible.

Next day, on examining the slides prepared as stated above, I found that the granular material seemed to have disappeared in the greater part of the specimen, while in its place had appeared numberless acicular and feathery crystals of hæmoglobin. There was also an evident tendency to the formation of crystals, even in those parts which were still granular, as shown by the appearance of fine radiating lines. In parts where a few corpuscles had persisted entire the crystals were seen to be directly derived from them, and by good fortune I was able to watch the gradual change into perfect crystals, which in these cases were larger than those derived from the broken-down material.

The patient went out shortly after, by his own desire, on finding that he had not gained in weight during the previous week. He was not quite so anæmic in appearance as when admitted, and had gained considerably in strength during his stay.

I had no further opportunity of examining the blood.

Case 5.—A policeman, æt. 47, who was admitted into George Ward in September, 1883. Eight years prior to admission he had had a long and severe attack of intermittent fever, which was contracted in the Kentish Marshes, where he had been sent to prevent the occurrence of prize-fights. He had to leave the force on account of progressive weakness, and for nine months before admission had been confined to bed with palpitation and general exhaustion.

When seen he was very anæmic, the conjunctivæ being excessively pale, and the skin dry, and of a yellowish-green colour.

On examining the blood, the number of corpuscles, as determined by the hæmocytometer, was 50 per cent. of normal. Most of the red corpuscles were undersized, some about a quarter of normal size being found, which had a very dark centre as if nucleated. There were numerous irregular masses of hæmatin (?), averaging in size about five corpuscles. The white corpuscles were not increased in number, but there were some very minute ones.

The temperature was generally over 100° F. at night, and

the patient was troubled by severe attacks of diarrhœa, which came on at intervals of a few days, for which a large amount of opium was prescribed.

Three weeks after admission a hæmic murmur developed at the base, and at the same time the patient had a bad attack of syncope ; the pulse rising to 200, and then gradually falling to 168, at which it remained for some hours.

About three weeks later, a further examination of the blood showed the red corpuscles to be more nearly of equal size ; the actual number present being about the same. There were, however, small cells which were globular, and of a deeper colour than the rest, but none of the apparently nucleated variety. Here and there scattered masses of amorphous pigment were visible. To the naked eye the blood had considerably more colour than when last seen.

Shortly after the patient went out at his own request.

I quote this case, although separated by so long an interval from the others, because it was in this that my attention was first called to the peculiar appearances presented by the blood in this disease.

In connection with the cases cited above there are two points to which I wish particularly to call attention, the first being the pathology of the blood, and the second the effect produced primarily on the blood, and so on the patient by the treatment pursued.

First as to the condition of the blood. It has been noticed by a number of observers that in this disease there is a profound alteration in the constitution of the blood, both as regards its formed elements and also the liquor sanguinis, but there has been considerable difference of opinion as to the actual changes present.

All are agreed that the number of the red corpuscles in severe cases is largely diminished, the individual corpuscles being as a rule both smaller and paler than in a normal state. Dr. Bramwell was the first to observe in addition that their shape was liable to great variation, the usual change being from circular to pyriform, this doubtless being due to a diminished consistence of the stroma. He also mentioned the presence of nucleated red corpuscles,

which have been noticed also by some other observers, but in all probability the nucleation is only apparent, being due to the fact that the hæmoglobin has become accumulated towards one part of the cell, as a very similar appearance can be produced artificially by the action of tannic acid on human blood.

The *size* of the red corpuscle is diminished for the most part in very great degree. In normal blood the red corpuscle has an average diameter of about 7·5 microns, but there are found some larger than this,—up to 8·5 μ, and others about 6·5 μ, the relative proportions in which they are present being, according to Gamgee, 75 per cent., 12 per cent., and 12 per cent. respectively. Similarly in anæmia corpuscles of varying size are found, a few even exceeding in diameter the largest of those present in health, the measurement in exceptional cases being even as much as 14 μ. By far the greater number, however, range between 4 and 6 μ. Dr. Hermann Eichorst notes the presence of corpuscles of a very small size not more than 3 μ in diameter, which differ from the others in that they are globular instead of the usual biconcave form, while they are also of a much deeper red than normal. Dr. Bramwell admits the presence of these minute corpuscles, but has failed to observe their deeper colour, in connection with which statement it is curious that I had noted the existence of these small, globular, deeply-coloured corpuscles before I consulted any authorities on this subject, and, contrary to the experience of Dr. Bramwell, have rarely failed to find them. Possibly these represent a later stage of the nucleated red corpuscles mentioned above.

The red corpuscles usually number about 5,000,000 in a cubic millimetre, but this is much reduced in pernicious anæmia, Ferrand describing a case in which only 10 per cent. of the normal number were present, but I have usually found the number as determined by the hæmocytometer to average from 35 per cent. to 45 per cent. of normal. The white corpuscles are also usually diminished in number.

As noted above, the corpuscles are very apt to lose their biconcave form and to spread out into a tail at one part or another, thus presenting a pyriform or sometimes a spindle

shape, the former being the most usual. When the consistence of the stroma is thus altered the colouring matter tends to leave the corpuscle, as mentioned in the notes of the cases, but at the same time does not necessarily become dissolved in the blood-plasma, at all events entirely, some of it remaining in amorphous masses. This appearance, which was seen in three of the cases, has not, I believe, been observed before. It is also worthy of note that the corpuscles do not form rouleaux, but appear to cohere by their edges, sometimes even appearing to become partially fused with one another.

With regard to the *colour* of the corpuscles in this affection, all are agreed that it is much less intense than in health, the individual corpuscles, with the exception of the small globular variety, being often so pale that they can hardly be seen under the microscope to possess any colour at all. If the blood be tested with the hæmoglobinometer the colourific intensity is found to be much less than can be accounted for merely by the diminution in number of the corpuscles, so that the actual amount of hæmoglobin in each corpuscle is lessened, even when the diminution in size is taken into consideration, at times so much as to be only one tenth of normal.

There does not, however, always appear to be a direct relation between the number and size of the corpuscles and the amount of hæmoglobin present.

The liquor sanguinis is, as described by Eichorst, of a serous amber colour, but his statement that it coagulates with difficulty has not been borne out in these cases, neither can one agree with him that the colourless protoplasmic granules found in normal blood are completely absent, as in each case they were particularly noted as being, if anything, more numerous than usual.

In three of these cases it was found that on rapidly drying a specimen of blood taken from the finger, the red corpuscles readily broke down, sometimes disappearing entirely, while sometimes a coarsely granular appearance was left. These specimens after a time showed, in place of the corpuscles, an aggregation of rhombic crystals of hæmoglobin, the spontaneous occurrence of which in anæmic

blood has not been noticed, apparently, before. Whether the fact of their appearance in this manner without special preparation may come to be of value from a diagnostic point of view, remains to be seen, but it appears the more curious when it is remembered that under ordinary circumstances it is practicully impossible to obtain hæmoglobin crystals from normal human blood.

From the blood of some of the lower animals crystals may be obtained with the greatest ease, notably from the guinea-pig, and rat or mouse, the general method of preparation depending on the breaking up of the red corpuscles by alternate freezing and thawing the blood, or by treating it with chloroform, æther, or bile salts, the hæmoglobin becoming dissolved in the blood-plasma, from which on standing, crystals are deposited—this part of the process being often hastened by the addition of a certain quantity of alcohol. Human hæmoglobin, however, is soluble in a much greater degree, and consequently is much more difficult to obtain in the crystalline form, the order of solubility, and so of facility of crystallization, being given by Gautier in the following order for various animals :

(1) Rat, guinea-pig, squirrel.

And then with a great interval :

(2) Cat, dog, horse, and man.

Rollett has obtained human hæmoglobin by a modification of the method given above ; but Dr. Allchin, to whom my specimens were shown, states that when working at the subject of blood with Dr. Michael Foster, under Dr. Sharpey, at University College, they were quite unable to obtain any.

Although, from these considerations, it is evident that human hæmoglobin can only be obtained with the greatest difficulty normally, still, when one considers the great changes in the constitution of the blood which appear to take place in this disease, especially the readiness with which, in certain cases, the corpuscles break down, it is not perhaps so wonderful that these crystals of hæmoglobin should be formed spontaneously and in the absence of all special preparation.

When the crystals were first observed, as described in the

notes of the cases, the question arose as to their nature. This would doubtless have been solved by a chemical examination, but it seemed scarcely advisable to destroy specimens so unique for this purpose. That they consist of hæmoglobin is, however, pretty evident from the following considerations :

1st. Their colour is a faint reddish brown, being darker when several crystals are superimposed.

2nd. Their shape is that usually ascribed to the crystals of human hæmoglobin—that of an elongated rhombic prism.

3rd. The specimens were quickly dried, so that if the crystalline material had been derived from the plasma it should have appeared at once, whereas it did not become apparent until a certain time, varying from about ten minutes to forty-eight hours afterwards, or even longer.

4th. In two cases, described above, in which the corpuscles persisted, no crystals were developed, but amorphous masses of brown pigment were seen instead, the difference possibly being due, in the one case in which the corpuscles broke down, to hæmoglobin (that is, hæmatin + globulin) being present ; while in the other, hæmatin only was extruded, the globulin being retained in connection with the stroma. That hæmatin, which is non-crystallizable and globulin, should be capable of dissociation thus, is borne out by the presence in old blood-clots of pigmented crystals of hæmatoidin, which is apparently identical with iron-free-hæmatin.

In two instances, the specimens of which were taken from Case 3, the crystals were seen to be directly derived from the red corpuscles, and their formation was watched from time to time. An exactly similar appearance is described by Dr. Lionel Beale as having been witnessed by him in the case of hæmoglobin crystals obtained from guinea-pig's blood, the crystals being comparatively large when springing from an entire corpuscle—smaller when arising from a portion of one which has partially broken down.

He says, "The blood-corpuscles do not, as is still repeatedly stated to be the case, become *ruptured* by endosmosis,

their contents being set free and undergoing crystallization as the solution gradually becomes concentrated by spontaneous evaporation, but the soft semi-fluid matter of which the entire red corpuscle is composed, passes from its colloid to its crystalline condition." Still, as I have before mentioned, it appears that some at any rate of the hæmatin may be separated from its connection with the globulin and become free in the plasma, while the corpuscle still retains its normal shape.

Considerable difficulty is experienced in preserving specimens of hæmoglobin crystals as permanent objects. Dr. Beale states that he has succeeded in keeping some, mounted in the dry way, and this answers exceedingly well in those obtained from rat's blood. The beautiful octohedral crystals from guinea-pig's blood may be mounted dry or preserved in glycerine, but in either case generally lose brilliancy and the sharpness of their angles after a time. Consequently, it was to be expected that crystals of human hæmoglobin, being so exceedingly soluble, would not be very permanent, and this unfortunately appears to be the case, as many of my specimens have deteriorated considerably since they were first prepared, but fortunately not before I obtained a photograph of one of them, by which of course an absolutely accurate representation of their appearance is preserved.

The only description of crystals occurring in the blood in disease is apparently that of Charcot, who speaks of the discovery of small lenticular crystals named after him, in the blood in leucocythemia. Gowers states that they are a post-mortem phenomenon, and also adds that they are not peculiar to this disease. These crystals, which Charcot considers to be of a proteid nature, differ in every respect from those just described, one important point of difference being that in these cases of pernicious anæmia the destruction of the red corpuscles was a necessary antecedent to the appearance of the crystals, while in Charcot's cases it was not so.

It is necessary to add a word or two on the treatment of this disease, since the appearances described seem to have a bearing, if only a negative one, on this point.

In all the cases arsenic was prescribed in the form of Liq.

Arsenicalis and with the best results. To Dr. Byrom Bramwell we owe not only some of the earliest descriptions and the first real investigation of this disease, but also the use of this drug in such cases.

This treatment now seems to be firmly installed as that proper to be pursued in this disease, and in support of it may be mentioned the not uninteresting fact that in the cases in which crystals of hæmoglobin were at first obtained none could be found after the patient had been for a few days under the influence of arsenic, even though the blood did not at the same time show any very considerable change in the number of corpuscles or in the amount of hæmoglobin present, while in two or three cases in which the drug had been administered before the patient was examined, but in which the hæmocytometer showed a percentage of corpuscles as small as that in the cases in which crystals were obtained, none were ever found.

These facts appear to show pretty distinctly that arsenic has a very immediate action for good on the blood in this disease, especially as all the patients, notes of whose cases have been given, left the hospital greatly relieved, if not absolutely cured. One of these, it must be stated, has been readmitted, and it is possible that the disease may return in all of them after a time, as is not unfrequently the case; still the effect of this drug, at any rate for the time, appears to be little short of marvellous.

Since this paper was first written two more cases of pernicious anæmia have been admitted into the hospital, also under Dr. Bristowe. On preparing specimens of the blood, hæmoglobin crystals were found in each instance, and owing to a mode of preparation somewhat different from that already described, the crystals are much larger, being easily seen with the A objective of Zeiss. They are also of a much more decidedly red colour, which is probably due to their larger size, and they correspond very closely in all respects with the descriptions given by Stirling and Brito, in a paper in the 'Journal of Anatomy and Physiology,' of crystals of hæmoglobin which were formed during the digestion of human blood by the common leech.

Knowing that the shape of the corpuscles was said to be altered in this disease, in the first cases examined a drop of blood from the finger was spread out on the slide in a thin layer by means of a needle, so that it dried very rapidly, and then, after a longer or shorter interval, the specimen was covered and mounted in the usual way. This method was adopted in order to procure a specimen in which the blood-corpuscles were spread out in a single layer, and which was consequently well suited for microscopical examination.

Finding that crystals frequently appeared in these specimens I continued this method of preparation until lately. In the last two cases, however, a fairly large drop of blood was allowed to fall on the centre of a slide, and when the edge of the drop had dried somewhat a cover-glass was gently placed upon it, but beyond this the preparations were not sealed up in any way, so that evaporation could proceed slowly from the circumference inwards.

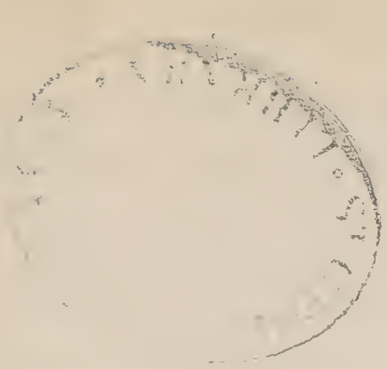
The resulting crystals were, as I have stated, larger, of deeper colour, and more perfect shape than those previously obtained, and, in addition, appear to be much more permanent.

In conclusion, I have to thank Dr. Bristowe and Dr. Hadden for so kindly allowing me to make use of the notes of the cases that have been quoted.

Tabular view of Cases.

No.	Sex.	Age.	Occupation.	Supposed cause.	General appearance.	Retinal hæmorrhages.	Diarrhœa.	Vomiting.	Fever.	Complications.
1	F.	27	Single	Rheumatic fever	Much jaundice. No emaciation	Yes	No	Yes	Yes	Epistaxis. Pain in long bones. Systolic murmur.
2	M.	32	Leather finisher	Rheumatism	Very anæmic, with yellowish tint. No emaciation	No	No	No	Yes	Epistaxis. Paroxysmal cough. Systolic murmur. Albuminuria.
3	M.	57	Brewer's man	Rheumatism	Emaciated. Pale and aged looking	Yes	Yes	Yes	Yes	Dry cough. Pain in bones.
4	F.	33	Married	Pregnancy	Pale brownish yellow. No emaciation	Yes	No	Yes	Yes	Œdema of legs. Pain in long bones.
5	M.	47	Policeman	Malaria	Very anæmic. No emaciation	Eyes not examined	Yes	Yes	Yes	Profuse sweating. Pain in legs. Hæmic murmur.




THE TREATMENT OF CYSTIC BRONCHOCELE.

By H. H. CLUTTON.

The following contribution is devoted mainly to the treatment of cystic bronchocele by simple incision and drainage. The injection of perchloride of iron, which was first brought forward by Dr. Morell Mackenzie in the 'Lancet' for 1872, is followed in many cases by so high a fever and such constitutional disturbance that some fear is frequently entertained as to the recovery of the patient, and the hæmorrhage from the cyst wall for which this treatment was suggested can be controlled without having recourse to a method which may involve the patient in all the consequences of profuse suppuration. The cyst is, according to Dr. Mackenzie's theory, converted into a chronic abscess, but during this process of conversion the fever generally runs so high a course as to ill accord with this name, and one feels more inclined to call it an acute abscess. If the cyst be a large one he recommends that it should not be emptied at once, but should be tapped two or three times before the injection is used. By this means the dimensions of the secreting surface of the sac are much reduced, and the corresponding reaction from the injection is lessened. Still even under these circumstances the severity of the fever and the exhaustion that is induced makes one hesitate to recommend this treatment when the same results

may be obtained more quietly by simple incision and drainage. The success following injection, however, has undoubtedly prompted surgeons to a more energetic treatment of these cases, for the ultimate result leaves nothing to be desired. It is only the process by which this is obtained and the risks thereby incurred to which one can in any way take exception.

The incision has also another very great advantage besides that of avoiding profuse suppuration and fever. If the case be one that does not involve the whole thyroid body the preliminary incision through the skin may enable the operator to see that the best treatment after all is not either drainage or injection of the cyst, but *removal* of that part of the thyroid gland which is diseased. Although total extirpation of this organ cannot with our present knowledge be entertained for these cases, yet the removal of *one half* may be a safe and judicious proceeding. An unilateral goitre may be formed either of one or more cysts, or largely composed of solid tissues. The removal of this part will rid the patient of his trouble, and as the history of Kocker's cases proves, will not entail the subsequent development of myxœdema. Three cases of this kind may be here quoted in which, by means of a preliminary incision, a complete examination could be made, and the most radical treatment adopted. This was in each case followed by a perfectly normal temperature and such rapid union of the wound that the patient left the hospital on an average of fourteen days after the operation.

The first case of excision came under my care in June, 1884. A man æt. 20 had noticed a swelling in the position of the thyroid body for twelve months. It was freely movable, and lying as it were upon the surface of the right lobe, which was distinctly enlarged but not obviously cystic. The movable swelling on the surface gave all the indications of a cyst, but on tapping pure blood escaped. As it diminished in size and again filled it was thought that it might be a cyst.

On June 25th a preliminary incision was made and the tumour laid bare. The right lobe with which this globular swelling was loosely connected was then found to be studded with small cysts, whilst the left lobe felt perfectly healthy. The incision was therefore extended, and the whole of the right lobe removed. There was no hæmorrhage of any con-

sequence, as each vessel was seen and clamped before division. On section of the tumour after removal the globular superficial swelling was found to be a solid vascular spongy growth, whilst the lobe of the thyroid with which it was connected was composed of small cysts filled with glairy fluid. The wound healed by first intention, and the patient left the hospital on July 10th, fifteen days after the operation.

The second case was that of a single woman æt. 44, who came under my care in April, 1885. A swelling had been noticed for three years, and had been increasing rapidly for the last six months. The tumour was fixed deeply in the substance of the thyroid body, close to the median line, but there was no enlargement of either lobe. It was very difficult to say for certain whether it was a cyst or a solid growth. An exploratory operation was therefore made on May 9th. The tissues of the thyroid body which had to be cut through to reach the tumour were very vascular, but the hæmorrhage was easily arrested by pressure. The tumour itself proved to be a solid vascular growth, and was very easily excised. The wound healed by first intention, and required no dressing after ten days.

The third case was that of a girl æt. 17, who came under my care in May, 1886. She had a large, soft, fluctuating central thyroid cyst, but no general enlargement of the organ. It had been noticed for three years and increasing rapidly for six months. She suffered from palpitation and breathlessness on any exertion, but was not at all anæmic. It was tapped on June 8th, with the result of drawing off black thick fluid, which was found on examination to be composed of altered blood. The tumour was then perfectly collapsed, and was proved beyond a doubt to be a simple thyroid cyst. There was no enlargement of the lateral lobes. Within a week the tumour had regained its former size, and it was clear that some more radical treatment would be the only means of procuring a permanent result. An operation was therefore undertaken with the intention either of removing the entire cyst or laying it freely open, and filling its cavity with aseptic gauze.

On September 4th the capsule was exposed by turning aside the right sterno-mastoid, -hyoid, and -thyroid muscles. It was then found, as was expected, that the cyst was on the

right side and that the trachea deviated considerably to the left. By carefully avoiding cutting into the tumour and clamping all vessels before their division, the cyst was eventually completely removed without much loss of blood. The trachea was very much flattened as well as twisted over to the left side. This condition was considerably in excess of what one would have expected from the size of the cyst or its degree of distension, and may in part be the explanation of the dyspnœa of which she complained. The cyst after its removal was about the size of a turkey's egg with a wall a quarter of an inch in thickness, composed of degenerated thyroid tissue. No enlargement or cystic disease of the rest of the thyroid body could be detected. The isthmus could not be felt in front of the trachea, and must have been absent unless the part removed represented the remains of this body. A drainage-tube inserted after the operation was removed at the end of two days, and the wound healed by first intention. The temperature never rose above 99° F., and all dressings were removed on September 13th, nine days after the operation. She left the hospital on the 18th. She was seen several times during the winter and stated that all symptoms of dyspnœa had disappeared. There was no enlargement of the thyroid body to be felt and the trachea seemed to have returned to its normal position. The scar gradually assumed the appearance of cicatricial keloid, which caused her some annoyance, but beyond this she had no complaint to make.

The next three cases were treated by drainage, as in two of them the whole thyroid was extensively diseased and there were many cysts, whilst in the third the patient was too feeble to stand the dissection necessary for the complete excision of the cyst wall.

The first patient was sent to me during May, 1884. He was a tall powerfully-built man, æt. 39, who had evidently been much reduced in size and strength. He stated that this change had slowly come on during the last twelve months. For fifteen years he had noticed a swelling in his neck, which was at first about the size of a walnut. It had slowly increased in size till two years ago when he came to live in England, having been born and resident in Ayrshire. It then began

to increase with much greater rapidity and give rise to other symptoms of discomfort. During the last six months he had suffered from shortness of breath, palpitation, and occasional attacks of giddiness and faintness. At night he was frequently sleepless from a sense of impending suffocation, and had become so much reduced below his natural condition that he considered himself to be only "half the man" he had been. There was no unnatural protrusion of the eyes nor any abnormal pulsation in the neck. The thyroid tumour was very large, completely filling the space between the chin and the sternum, but mainly composed of one cyst, which seemed to be prolonged more on the left side than on the right. Beneath it and on both sides were some smaller cysts or rounded solid growths. It was clear from the amount of this general disease of the thyroid body, in addition to the large cyst, that it would not be safe to attempt its removal.

On May 14th, 1884, an operation was undertaken with the intention of laying the cyst widely open and filling its cavity with iodoform gauze. The incision, which proved a great deal too large and only increased the danger of hæmorrhage, was made over the greater part of the tumour in the middle line with the hope of being able to suture the cyst wall to the skin. This turned out to be impracticable on account of the hæmorrhage, which was very severe. Two fingers were rapidly introduced, which at once controlled the bleeding, and a counter-opening made at the farthest extremity of the cyst on the left side. The cavity was then quickly filled with iodoform gauze and a portion drawn out at the counter-opening. A pad of the same material over the wound and a figure-of-eight bandage crossing over the neck completed the dressing and controlled the hæmorrhage.

To have spent time in suturing the cyst wall to the skin would in this case, with such a large wound and secreting cavity, have endangered the patient's life; for the bleeding came from the cavity as freely as from its cut surface. There was a little blood-stained oozing for twenty-four hours, and then the discharge became quite colourless, requiring the outside dressing to be frequently changed for the first five days. Temperature during this time never rose above 100° F.

19th.—The deeper part of the dressing was changed, but

the plug being firmly held was left in position. The discharge was quite sweet and of the colour and consistence of serum.

22nd.—The gauze plug was replaced by a drainage-tube. There was a large quantity of serous discharge, but no pus. Shortly after this the temperature occasionally rose to some point between 101° and 102°, and was uniformly higher than appeared to me to be satisfactory. At the same time in syringing the cavity of the cyst, which had been ordered on account of this elevation of temperature, it was noticed that large yellow masses were displaced and washed out through the wound. The dressing had to be changed nearly every day on account of the discharge, which was very abundant.

June 10th.—I introduced my finger through the wound, and found there were still large masses of crumbling material in the interior. Partly by scraping with the finger, and partly by a stream of carbolic water from a syringe, these masses were as far as possible removed. After being broken up in this manner some of them were still as large as the extremity of a man's thumb. Although there can be little doubt that most of this was altered blood-clot, yet I came to the conclusion at the time that intimately incorporated with it was some fine connective tissue, and that, therefore, in all probability the bulk of the débris was the broken-down tissue of the thyroid gland, which would naturally contain a very large quantity of blood. No microscopical examination, however, was made.

A week later he was very much better in every way, and continued slowly to improve, till at the end of the month he was able to get up and move about the ward. He left the hospital and became an out-patient on July 10th, about two months after the operation. The thyroid swelling had by this time dwindled down to the size of a small orange; but the tube had to be retained, for there was a large quantity of thin, watery discharge.

The subsequent history of this case may be shortly told. The remains of the goitre continued to shrink, but the sinus remained open for two years. For the first year after the operation some curdy yellow stuff could be sometimes squeezed out by pressure, and on one occasion while the tube slipped out some increase of the swelling took place. But the re-introduction of the drainage-tube, after the dilatation of the

sinus by a laminaria tent, quickly caused the remains of the thyroid body to resume its former size. He was able himself to take out the tube, and after washing it, to replace it in the sinus. During the early part of 1886 the tube had to be frequently shortened, till finally, in August, 1886, it could not be reintroduced, and the case was practically at an end. There is now very little of the goitre to be felt, and he is as well as he ever felt in his life, looking quite fat and strong. There is now no palpitation even on running, which was before quite impossible. He has no feeling of breathlessness, and he sleeps perfectly without any disturbance.

The second case was that of Margaret W—, who was sent to me by Dr. Acland in July, 1885. She was a married woman, æt. 40, and had had seven children, the youngest being three years of age. She was born in Gloucestershire and had lived chiefly at Malvern.

For six or seven years she had noticed a swelling in her neck which had slowly increased in size. She had never had good health and had lately become very feeble. The tumour was a very prominent globular cyst, situated exactly in the middle line just above the episternal notch, and of about the size of a large orange. It was evidently connected with the thyroid body, but the rest of the organ did not seem to be enlarged.

It was tapped with a fine trocar, and half a pint of dark bloody fluid glistening with cholesterine was withdrawn. When the cyst had been thus emptied, no other swelling, solid or fluid, could be detected in its vicinity, and through the deep depression left after its evacuation no enlargement of the thyroid itself could be found. The fluid rapidly re-collected, and she was admitted into the hospital on August 17th. She was so thin and miserable that I thought it best to postpone any treatment for a few weeks, till by rest and diet her general health had improved. No other organic disease except that for which she had been admitted was detected by Dr. Acland. But she seemed to be too feeble for an operation which might involve a long and tedious dissection. Otherwise it was a most suitable case of extirpation of the cyst wall as it was apparently almost identical in its nature to the third case of removal recorded above, p. 175.

On September 5th the cyst was opened by an incision in the median line, and as no hæmorrhage requiring pressure took place a drainage-tube only was introduced, and an aseptic dressing applied. The highest temperature, 100·1°, was recorded on the night of the 8th, and from that date was never above 99°. The dressing was changed on the 7th, 10th, 18th, and after this about once a week.

She had no constitutional disturbance of any kind, and felt as well a day or two after the operation as before. The drainage-tube was shortened from time to time as it projected from the wound, and was finally removed on December 11th, a little over three months from the date of operation. The wound was completely healed by the end of the month, and there was only a small amount of thickening to indicate the original position of the thyroid cyst. In March, 1885, she stated that she had had much better health since the operation than she had experienced for many years, especially during the spring, and there was no enlargement of the thyroid body to be detected. At the present time, July, 1887, there is no indication of any kind that the disease is likely to return, and her general health remains in the same improved condition.

The third case in which incision and drainage was carried out was sent to me by Dr. Colcott Fox in June, 1886.

Harriet S— was forty-six years of age, and had been married twenty-four years. She had had twelve confinements, and after one of these events, seven years before, had first noticed the swelling in her neck. At her last confinement, which had taken place three months before, a very rapid increase in its size had been observed, and she thought that something ought to be done. She had never lived out of London. There was no shortness of breath, but she complained of some slight discomfort in swallowing.

On examination, it was found that one large central cyst was the chief cause of the swelling, which extended more on the left than the right side, but the whole thyroid body was felt to be considerably enlarged and nodular. When the cyst had been tapped, and a quantity of straw-coloured fluid withdrawn, the general enlargement of the gland could be more distinctly felt.

To remove the cyst in such a case with the whole thyroid

diseased did not seem so good a treatment as that by drainage, for in extirpation there would probably be no indication as to the exact limits of the cyst wall, and even if there were such a definite capsule the wound would probably heal rapidly, leaving the remains of the gland still too large for comfort, and ready at any time to start again into active growth.

The treatment by drainage, on the other hand, would, it was thought, probably create a chronic inflammation, which might produce a diminution in the size of the whole thyroid body. And if this were done on the modern aseptic method, there should be no danger of profuse suppuration and fever.

She was admitted into the hospital on August 27th, 1886, when the circumference of the neck was sixteen inches.

On September 4th an incision was made into the cyst in the middle line large enough to introduce two fingers. The hæmorrhage was profuse, but easily controlled by pressure. The cavity was therefore quickly filled with strips of iodoform gauze, and an external dressing applied, which exercised some pressure by means of a figure-of-eight bandage. The oozing of blood-stained fluid was rather troublesome for twelve hours, requiring a frequent change of the external dressing. But after this the superficial layers were only changed once in three days. One of the strips of gauze was removed from the cyst on the 9th, some more on the 13th, and the remainder on the 16th, when a drainage-tube was inserted in the place of the plug. The dressing was then changed about twice a week till she left the hospital on October 8th.

The temperature never rose above 99° F., and there was no constitutional disturbance of any kind. The cyst had thus been converted into a chronic discharging sinus with as little inconvenience and danger as in any minor operation in surgery.

She came to the hospital as an out-patient, at first twice a week and then once a week for some months, to have the dressing changed. She then learnt to take out, wash, and re-introduce the tube by herself, and I saw the patient at longer and longer intervals.

May, 1877.—It is now nine months since the operation, and I have no doubt that she still has to wear the tube, but the discharge when I last saw her about a month ago was very

insignificant, and there was scarcely any swelling in the neck immediately around the tube.

This method of treatment has, as was expected, produced a quiet and gradual diminution of the whole thyroid swelling. The inconvenience of wearing a drainage-tube so long is, in the writer's opinion, a drawback, which is, comparatively speaking, insignificant when one considers the fever and constitutional disturbance produced by the injection of perchloride of iron; and at the present time no other method of treating a cystic bronchocele is known by which a gradual diminution of the whole thyroid body can be produced.

August, 1887.—She was seen in the out-patient room, and stated that she was in better health than she had been for many years. A small drainage-tube was still being worn, and passed for one and a half inches to the left side of the trachea. The circumference of the neck was thirteen inches.

Mr. Mayo Robson read the notes of two cases at the Clinical Society (January 14th, 1887) in which he had adopted the same principle with the addition of stitching the wall of the cyst to the skin. From the report it appears as if they were simple cysts without any general disease of the whole thyroid body. If such were the case removal of the cyst would appear to the author of this paper a better operation, for provided the capsule be not incised there is, as a rule, no hæmorrhage which cannot be easily controlled in the cautious enucleation of the tumour; on the other hand, if diseased thyroid tissue has to be divided over any considerable area such an operation would not be a safe proceeding. But, as in the case recorded above, p. 174, if such disease be confined to one lobe the most rapid and radical treatment is the removal of the whole of that lobe, as the diseased tissue need not be incised during any part of the operation. After the ligature of the supplying vessels the lobe is turned out without cutting into the thyroid body and the isthmus tied with strong silk; the diseased lobe can then be cut away with safety.

The most suitable cases for this operation of incision and drainage are those in which the *whole* thyroid body appears to be involved in the disease, and in which it is clear no operation by enucleation can with safety be undertaken on account of

the necessity of incising the diseased thyroid body during its removal. And experience has shown that the simple drainage of a large cyst or cysts will in time procure the atrophy of the remaining tissue.

With regard to Mr. Robson's suggestion of stitching the cyst wall to the skin, it would appear from the above cases that it is not always necessary, and in some would be inadvisable. In the first case of incision and drainage the operation was commenced with the distinct intention of doing so, but the hæmorrhage was so severe on incising the cyst wall that it was obviously unwise to spend time in this part of the operation. In the subsequent cases no attempt was made to shut off the cervical fascia.

If the tissue between the cyst wall and the skin has not been much disturbed the precaution of applying these sutures would not appear to be necessary; and if this tissue has been injured by dissection the sutures would rather add to the risk than remove it, for they would tend to prevent the escape of blood and serous fluid from the meshes of the cervical fascia towards the wound.

In the modern method of dressing wounds there is very little risk of extension of inflammation from the seat of operation provided a free vent is allowed for the escape of effused fluid. So that on further consideration the author of this paper is inclined rather to think that the very object which this part of the operation is intended to promote, namely, the shutting off of the planes of areolar tissue in the cervical fascia, especially those towards the anterior mediastinum, would be more likely to be obtained by leaving them open towards the wound in the skin.

REMARKS

ON OBSOLETE PUS, ON HERNIA,

AND

ON CIRCUMCISION.

By CHARLES A. BALLANCE.

I. On Obsolete Pus.

What is obsolete pus? Is there such a condition in an absolute sense? Is not the term in other words only of comparative significance? What is the reply which modern bacteriology would give to these questions?

And in the first place it will be convenient to inquire how it is that organisms are found in pus which has been formed far away from any internal or external surface of the body? It may be taken for granted that pus never exists without the associated presence of organisms. No competent bacteriologist has ever affirmed the contrary. How then have the pus germs reached the part antecedent to the production of pus? Their invariable association with purulent collections indicates that in some way or other they are indispensable agents in pus manufacture. Moreover, the subcutaneous inoculation of animals with pus organisms[1] always gives rise to an abscess. The questions which present themselves for

[1] See Mr. Cheyne's researches referred to further on in this paper with regard to the inoculation of a *definite dose* of organisms.

solution are therefore these :—Are[1] the organisms dormant or latent in the tissues in some stage of their life-history which is at present unknown to us, or do they from time to time under normal or other circumstances enter the blood-stream? If this be so they mostly die, and only live if by chance they hit upon some weakened or damaged spot in an individual who has inherited a diathesis or nutrient soil which is favorable for their growth and development. The second proposition is certainly the most probable, as it would bring chronic diseases such as chronic abscess into line with specific infectious diseases such as tetanus, actinomycosis, tuberculosis, and glanders in which it has been proved that definite external agents, or certain definite poisons produced by the normal activity of these agents, gaining entrance to and circulating in the blood, react upon a distant organ or organs, and thus cause all the typical phenomena of disease.

It does not follow, however, that because an organism, or some morbid material manufactured by an organism, has been deposited in a tissue appropriate for its development, that growth will occur and symptoms arise immediately. There is good evidence in favour of the view that organisms may remain latent for a long time in the body. This is quite in harmony with what we know of local tubercular lesions, and further, it has been shown[2] that the spores of certain fungi when sown within the body of an animal may be recovered from some of the viscera by the method of pure culture months afterwards, when the animal is killed. On the other hand, it must be remembered that the failure to cultivate organisms from the blood under healthy or chronic disease (*e. g.* local tuberculosis) states is no proof that organisms do not normally enter the circulation. I suppose we are all breathing and swallowing[3] daily tubercle-bacilli and other

[1] See a discussion of this question in a paper by Mr. Shattock and myself on the pathology of cancer ('Path. Trans.,' vol. xxxviii).

[2] Wyssokowitsch, 'Zeitschrift für Hygiene,' 1886, Band i, Heft I, "Ueber die Schicksale der in's Blut injicirten Mikroorganismen im Körper der Warmblüter."

[3] See Ziegler's 'Pathology' (English trans.), part i, p. 177. "Koch finds the tubercle bacilli after inoculation develop and multiply only when they reach a spot where they are not subject to much mechanical disturbance. From this we may understand how it happens that many persons, though again and again exposed to the invasion of tubercle bacilli, yet remain unaffected. Moreover,

germs more or less, and if it be that a few organisms enter the blood of an individual each day only to be destroyed by the white cells, the mass of the blood is so great that the likelihood of the discovery of them by an observer examining a drop of blood is infinitesimal. In this relation it is to be noted that Mr. Watson Cheyne[1] has shown, in regard to the cocci of pus and other micro-parasites, that the *number* of organisms present as well as their quality is important in determining the production of a pathogenic state. Perhaps the resisting power of an individual to disease might be calculated by the gross number of a standard organism which could be inoculated without giving rise to deleterious consequences. The personal element, therefore, as has been beautifully illustrated lately by a research published in 'Virchow's Archiv,'[2] is a very important factor in disease. In this paper pictures are given illustrating the varying activities of the carrier-cells in different animals which had been some hours or days before inoculated with anthrax. The drawings show—

1. The white cells of a dog (taken from a Ziegler's chamber[3]), and the leucocytes and spleen and liver-cells of an

individuals in whose tissues inflammatory changes have already occurred are those who are most disposed to tuberculous infection." *A suitable soil is thus prepared.*

[1] "Report on certain of the Conditions of Infection," Mr. W. Cheyne, 'Brit. Med. Journal,' July 31st, 1886. Chauveau, 'Comptes Rendus,' 1880, had previously shown that a large dose of anthrax bacilli was necessary in order to kill an Algerian sheep. To give another instance, Pasteur has shown that in order to cause rabies or to protect against the disease, a definite dose of the virulent or attenuated virus respectively is necessary.

[2] Carl Hess, "Untersuchungen zur Phagocytenlehre," 'Virchow's Archiv,' Band cix, Heft iii. See also Dr. Lauder Brunton's 'Pharmacology, Therapeutics, and Materia Medica,' pp. 69 and 47. "The struggle for existence is between the amœbæ and the bacilli." "The white cells vary in different animals in their power of resistance to drugs," and in illustration Geltowsky is quoted, who states ('Practitioner,' vol. viii, p. 325) that "the amœbæ of a newt are more resistant than those of a guinea-pig, and that those of the female newt are more resistant than those of the male newt." What is true in this relation of drugs is probably also true, *cæteris paribus*, of pathogenic bacteria. The power of a bacterium to infect varies with the resistance which the "amœbæ" or "personal element" of the individual can oppose to the process. The variations of the "personal element" are strikingly shown by other facts, *e. g.* anthrax is fatal to house mice, but field mice and brown rats are practically insusceptible to the disease.

[3] 'Ziegler's Pathology,' part i, p. 152, line 2.

unincubated frog.[1] 2. Sections of the spleens of a white rat and a guinea-pig dead of the disease; and 3. The leucocytes (taken from a Ziegler's chamber) of a rabbit which had been protected by a course of mercury before being inoculated with anthrax.

The dog and the frog are insusceptible to anthrax, and the bacilli are all found, broken up and partly digested, in the leucocytes, and also (in the frog) in the hepatic and splenic cells. None are free, and the health of the animals is not at all impaired. In the spleens of the white rat and the guinea-pig, in which the disease was rapidly fatal, the majority of the bacilli are free and growing external to the cells, which, powerless to attack them, are going down before their triumphant activity. And in the drawing of the carrier-cells from a protected rabbit these appearances are combined; most of the organisms are visible in the process of disintegration in the cells, whilst others are free and apparently growing between the tissue-elements. The cells at last, however, obtain the mastery and come off victors in the fight; and in harmony with these microscopical events, though the animal is very ill, it ultimately recovers.

Before leaving these general considerations, which may, I hope, throw some light on the obscure question of obsolete pus, reference must be made to the result of injecting bacteria,[2] pathogenic and non-pathogenic, or inorganic[3] particles into the blood. In each case the matter injected will be found subsequently in largest quantity in the spleen, the liver, and the medulla of bone—in fact in those places which may be looked

[1] Metschnikoff, 'Virchow's Archiv,' Band xcvii, 1884, showed that a frog if kept in a warm chamber succumbed to anthrax. A frog varies in temperature with its environment and yet lives. Its cells which under ordinary circumstances, are proof against the bacilli, lose their vital resisting power when exposed to a moderately higher temperature. This fact may partly explain why some diseases are limited to tropical countries, always remembering, however, that man's temperature does not change with his habitat.

[2] Wyssokowitsch, ibid.

[3] Ziegler ibid., part ii, p. 30. Several experimental researches are quoted, the outcome of which is "that inorganic particles when injected into the blood become enclosed in contractile cells and are deposited outside the vessels in the spleen, liver, kidneys, and bone marrow. The carrier-cells generally take up the foreign matter before it leaves the blood, but in the spleen pulp and in the marrow it may become enclosed after escaping."

upon as the chief haunts of the carrier-cells. All particles entering the blood are seized upon by the white cells, and if indigestible will probably be ejected from them in the liver, spleen, or bone-marrow, where they may permanently stay between or within the fixed tissue-elements, or from whence they may be by excretion removed from the body. If the particle be a pathogenic organism, excretion may or may not occur; but if it does not, the organism may remain latent *in situ* for an unknown period of time, and then perhaps be carried to some new habitat appropriate for its growth (*Query*—Is this the way in which tubercular arthritis arises in strumous subjects after slight injuries?); or the organism may develop in the tissue in which it is deposited and so produce a local disease; or, lastly, the products of its activity, be they living or chemical poisons, may be shed into the blood-stream, and thus cause disease in some distant organ with which they have some pathological affinity, or a general infection of the system.

It is hardly necessary to point out how interesting these observations are from many points of view, for not only may this roundabout way be the path by which organisms may reach a spot where pus is to form, but it offers an intelligible and suggestive explanation of the reason why certain localities are so prone to secondary infections in other diseases, such as cancer and pyæmia.

If a chronic abscess is secondary to, and is associated with, some other lesion, such as tubercular[1] caries, one form of organism has probably gained an entrance into the body long before the necessity arises for the presence of pus germs; and when one kind of bacterium has managed to maintain an active

[1] Large abscesses which become "obsolete" no doubt, as a rule, owe their origin to tubercular disease. But is this always the case? Some years ago I saw an old man with a tumour of large size affecting the middle of the back of the thigh. It had existed for more than twenty years without any alteration in size. The diagnosis was lipoma beneath the fascia. It turned out to be, however, an old abscess full of caseous pus. The capsule was apparently far removed from any point of bone. A satisfactory account of the commencement of the disease could not be obtained. It seemed to have attracted little attention. The family and personal history was good. The question is, whether tubercle of bone or soft parts was responsible for the first formation of this abscess, or whether it arose independently of tubercular action? Perhaps the tubercular view is the most probable.

or latent existence in the system, there is at once an evidence of some deviation in the patient from the standard of ideal vitality, and it becomes easier to understand (when once the living barrier has been invaded) the entrance of other forms which are not antagonistic to those already in possession of the field.

And now, having thus briefly discussed the question as to how organisms can be found in pus which has had (except through the blood) no communication with the air, some consideration must be given to the conditions within and around a chronic abscess. A chronic abscess increases or remains stationary or recedes in accord with the resisting power of the individual and in harmony with the virulence of the process of attack. The object of the practitioner should be directed to bolstering up or protecting the vitality of the patient's corpuscles, so as to bring about the defeat of their opponents, as in the experiment in which a rabbit was protected by a course of mercury from anthrax. Along[1] this line and following this lead the scientific therapeutics of the future will, I think, gain the greatest victories.

In Sir James Paget's classic lecture[2] on 'Residual Abscesses' is noticed the remarkable specimen which is in St. Bartholomew's Hospital museum (Series V, No. 30). It shows two psoas muscles entirely hollowed out and filled with the half-dry remains of pus. The obsolescence in this case was doubtless due to the fact that the vitality of the patient was at last more than equal to the activity of the germs of disease. The pus, surrounded by a thick capsule, gradually withered and shrank up, the organisms in the pus cavities being either destroyed by the white cells, or dying for lack of nutriment, or becoming dormant in the dried-up mass. If the bacteria be latent in consequence of starvation they would remain so until some disarrangement of the abscess boundary by an injury, or some event such as a fever, occurred which would again supply them with the sustenance necessary for their

[1] Compare Dr. Cash's experiments, 'Local Gov. Board Reports,' 1884-5 and 1885-6. See also Dr. Lauder Brunton, ibid., p. 82: "All we may hope to do is to *turn the scale* in favour of the organism in the struggle for existence between the cells which compose it and the bacteria which invade it."

[2] 'Clinical Lectures and Essays,' by Sir J. Paget, ed. ii, p. 313.

growth; on the other hand, it is conceivable, but not probable, that in a given mass of dried-up pus all the organisms might be lifeless, but even then a blow or strain, or a febrile state, might at any moment determine the outbreak of a new inflammation in the old spot; for bacteria, if circulating in the blood, would soon discover in the environment of a chronic withered-up abscess, a nidus, apt for growth and for the demonstration of their special pathogenic properties.

The following case well illustrates the incompleteness of the process of obsolescence even after a period of fifty years. The patient was a stout, tall, vigorous man in his sixty-seventh year whom I saw about a year ago. He told me that during the previous two and a half months he had been in Switzerland and at Homburg, and that he had been taking daily, under medical advice and for his own pleasure, prolonged walking exercise. He complained of aching pain in a lump, which he had had from boyhood on his back. The lump, also, he assured me, was increasing in size, and the waistcoat, which had always had to be made large on the left side, could not, for the last three or four weeks, be buttoned. He complained also of weakness after exercise, pain in the back after kneeling, and inability to sleep. The swelling of the back, he informed me, was present when he first went up to Oxford. He was fond of rowing and riding, and had never been recommended to give them up for less violent modes of recreation. His style of rowing subjected him to a good deal of chaff; the back was not straight and supple, and he had a tendency to "screw" his oar. He did not remember ever having any pain or uneasiness in the back until a few weeks ago at Homburg. When at Oxford he showed the swelling to a surgeon, who wanted to put a knife into it, but Dr., now Sir Henry Acland, advised him against any surgical interference. For thirty years he had been Vicar of a large parish, ten miles in extent, and though he was accustomed to take long walks every day for the purpose of visiting his people, he had never known before any inconvenience or discomfort to arise from the state of his back.

On inspecting the posterior surface of the trunk (of which a sketch taken from a cast is here given, in order to show that there could really be no question as to the nature of the

disease), some irregularity of the upper lumbar spines could easily be made out, and a large tumour was seen, involving the left lumbar region and extending upwards over the posterior aspect of the left lower ribs. The tumour was firm and hard except at one point near the centre, which was distinctly tender, and where some doubtful fluctuation could be obtained on deep pressure in various directions. The patient assured

Fig. 1.



Drawn from a plaster cast.

me that the swelling was considerably larger than when he left England, and that it was increasing every week. He had been to Sir James Paget and, subsequently, I had the advantage of a consultation with him.

Sir James recommended that the patient should be kept

absolutely in the recumbent position for three months. This was done, and the result was, that all the threatening symptoms subsided. It was thought best to forbid the performance of any active duty and to counsel the adoption of an invalid life for another six months. Now the swelling, as in the sketch, has returned to its old size and the urgency of the case has quite passed away. Sir James told me that he had never known such a long time to elapse between the obsolescence and the renewed activity of an abscess.

The extra strain involved in climbing mountains and in prolonged exertion had no doubt in some way changed the mechanical arrangement of the abscess wall so that nutriment could again reach the latent bacteria.

The rest effected a cure by improving the general health and by preventing any further disturbance of the parts, so that in the end the personal element was again the victor. If, however, pûs had formed to an extent which would have rendered its evacuation necessary, this, I think, notwithstanding the patient's age, could have been, with antiseptics, successfully accomplished. All the organs were healthy, he was still vigorous, and the original cause of the pus, the bone mischief, had long since ceased to exist.

From the history of this case, and from the foregoing criticism on the bacteriological conditions under which the obsolescence of pus takes place within the living body, the conclusion must, I think, be arrived at that, from a practical and clinical point of view, "obsolete pus" is a term which should not be employed in an absolute sense.

II. On Hernia.

The employment of tendon in the operation for the radical cure of hernia has been mentioned, amongst other materials, by various authors. The special properties which it possesses, and which cause it to be peculiarly adapted for use in this operation, and appropriate to the objects which the surgeon has in view, have not been referred to by any. The short report[1] made by Mr. Edmunds and myself to the Royal

[1] "The Ligation of the larger Arteries in continuity: an experimental inquiry," 'Med.-Chir. Trans.,' vol. lxix, by C. A. Ballance and W. Edmunds.

Medical and Chirurgical Society, during the experimental study of another question, on the resisting properties of tendon, and on the unreliability and variable quality of the best commercial catgut, when embedded in the midst of living tissues, is germane to this note and is the scientific basis of my advocacy for the use of tendon in the radical cure of hernia.

That a piece of tendon about the size of No. 4 catgut, when properly[1] prepared, will hold for two months, whilst the best catgut may melt away in any time, from a few days to four weeks, is the practical outcome of our work. It is necessary, beyond dispute, to use a material in the radical cure of hernia which, while it is absorbable and antiseptic, will surely hold the parts firmly together for a long time; and in tendon the surgeon will find all his requirements satisfied. The use of this substance for other operations, such as the ligation of arteries in continuity, and the suture of bones, I do not here refer to, except to say that for the latter purpose it is, I think, very inferior to wire.

I have witnessed the use of tendon in operations for the radical cure of herniæ by some members of the surgical staff of St. Thomas's Hospital. It was, indeed, in a case of inguinal hernia in a man on whom Mr. Pitts was operating, and whom I had the privilege of assisting, that I first saw, some years ago, this kind of ligature employed.

At present I have had but five opportunities of using tendon for the radical cure of hernia. These cases all came under observation for radical cure, and not on account of strangulation, and they were all cases in which the truss was

[1] *Kangaroo tendon* should be kept in carbolic oil (1 in 10 or 1 in 20) until about one hour before it is required to be used. It should then be placed in carbolic or sublimate solution, which will give it the requisite amount of flexibility. A longer soaking in the watery antiseptic solution is necessary if the piece of tendon to be employed is very thick. *Reindeer tendon* remains quite supple enough in oil, so that the preliminary immersion in a watery solution can in this case be dipensed with. Mr. Barker ('Brit. Med. Journal,' Dec. 3rd, 1887, p. 1204) has given up the use of tendon. He used it in one case of hernia, and thought that it was absorbed too rapidly. Not long ago I saw kangaroo tendon employed for suturing the tibia for ununited fracture. It had been kept for more than a year in carbolic *solution*. Secondary hæmorrhage occurred on the sixth day, and on the wound being opened up *no trace* of the tendon could be discovered.

practically valueless. Two of them were in men with inguinal herniæ, two were in women with irreducible femoral herniæ, and the fifth case was in a child with congenital inguinal hernia. They are so few in number that I do not refer to the cases in detail, and I am not wishful to express any absolute opinion on the foundation of a small personal experience; but I record the simple fact that in each of these patients no return of the hernia has taken place, and no truss is worn. In judging of this question it is only fair to add, that though my own operations are insignificant in number, yet that, in the capacity of an assistant, and as an observer of the operations of others, and the results which they obtain, I have had a considerable experience. The conclusion of the matter is this: that the more general use of properly-prepared tendon would, I think, produce results highly satisfactory both to surgeons and patients.

Briefly, my plan of operating for the cure of inguinal hernia is as follows:—The sac is removed,[1] and its neck is ligatured with tendon. The tendon in this position increases the bulk of the neck, which can thus be made use of to block the internal abdominal ring. When tendon is placed around the neck of the sac it must be made first to transfix it. Owing to its slippery nature it is quite unfitted for ligating a terminal stump of any tissue, be it an artery after amputation or after complete division in continuity[2] as in the Abernethian opera-

[1] See Mr. Barker's new 'Manual of Operations,' pp. 335, 336, for an admirable description and drawing of how a radical cure operation for inguinal hernia should be done. He uses carbolised silk, and makes the valuable suggestion that the continuity of the neck of the sac should be completely broken, but that the sac itself should be left. The plan seems practical and efficient. It can be more rapidly performed, causes less disturbance of parts, and is less likely to be followed by suppuration, than the clearing away of the whole of the sac by a dissection which is sometimes difficult and complicated, as when the structures of the cord are spread out all over the sac, or when the case is one of congenital inguinal hernia. In femoral hernia the conditions are different, and I believe the sac ought always to be excised. See cases and remarks by Mr. Lucas ('Clin. Soc. Trans.,' vol. xix, p. 6). He says "that in a case of femoral hernia he *would deem no operation complete* until the sac had been excised." Dr. MacEwen's operation, I think, is hardly likely to displace the method as described by Mr. Barker, except perhaps in a few exceptional cases in which the hernial openings are very large, and the adoption of some method of plugging appears unavoidable.

[2] See a case of hæmorrhage related by Mr. Butlin under these conditions in the 'Clin. Soc. Trans.,' vol. xx, p. 34.

tion, or the neck of a hernial sac, unless it can be in some way fixed (as by transfixion) to the part to which it is applied, otherwise than by the circular constriction of an ordinary knot. For the same reason it should never be used for ligaturing the omentum, and as catgut is untrustworthy there can be no better substance than silk for this purpose. In the peritoneum silk generally becomes encysted, whilst outside the peritoneum the chances are rather in favour of its suppurating out. In illustration I may add that the other day I found in the post-mortem room an encysted silk ligature which Mr. Thornton had placed eighteen months before around the pedicle after removing the appendages on the right side of the uterus; and, further, only last month two cases of secondary hæmorrhage from the omentum after hernia operations came under my notice in different hospitals, and in each case catgut had been employed to secure the omentum.

The neck of the sac being ligatured is placed just within the internal abdominal ring and then the canal and rings are laced up as much as possible, leaving room only for the structures of the spermatic cord to pass, and, of course, avoiding any implication of them. It is expedient to possess handled needles of various sizes and shapes for this part of the operation. A useful curve is one which is at right angles to the shank, and which has a radius about equal to that of a shilling. For threading tendon the "eyes" must be made much larger than usual. The enlargement should be carried out towards the point of the needle and not towards the shank. The conjoined tendon is brought into apposition with the external oblique, which is the only certain mode of closing the canal. The simple sewing together of the pillars of the external ring is an inefficient procedure, and could not in a series of cases show the best results. The great point then is not to be stingy in the use of the tendon stitches, but to employ as many of them as is possible and convenient. It is upon the constructive exudation which forms around the ligature material that the surgeon mainly depends for the permanent obliteration of the abnormal patency of the canal. The final successful result no doubt is in part due to the persistence of some of the new material; but what is most to be desired, is, that it may chiefly rest on the knitting together in

firm union of the tendinous boundaries of the canal which have been unnaturally separated.

In femoral hernia the procedure, *cæteris paribus*, is practically identical with that already described. In one of my cases the hernia was very large and was composed in great part of omentum, which was cut away with, indeed, every bit that could be pulled out of the abdominal cavity. The removal of all the omentum that can be got at is carried out with the view of making room for the return of the intestine, and in some cases is indispensable. The deposit of fat in the omentum in later life I cannot but think must cause the belly cavity to become too small for its contents, must increase the internal abdominal pressure, and thus be a predisposing cause of hernia, or, at any rate, a cause which makes for the increase in size of already existing herniæ. The idea of extirpating all the available omentum first occurred to me four and a half years ago in operating upon a very large strangulated umbilical hernia in a stout woman fifty years of age.[1] The result was most satisfactory. I examined her a week ago, and though during the last twelve months she has suffered from a cough the cicatrix is firm and there is no sign of recurrent protrusion. And now to return to the technique of the operation in my case of large femoral hernia. After the neck of the sac was transfixed and ligatured with thick tendon so as to increase its size it was placed just within the crural ring. Before closing the neck it is well to be sure that no tag of omentum is adherent inside the abdomen in the neighbourhood of the ring. The parts are more favorably situated for radical cure if everything is free and nothing is left to guide the intestine down again to the position of the ring. The crural ring in this case was so large that I was almost in despair of closing it, but eventually it was effectually occluded with a lattice-work of tendon which was made to cross and recross the aperture.

[1] The omentum weighed after the operation, when much serum had exuded from it, nearly 1 lb. Mr. Pitts removed 1½ lbs. of omentum from the sac of a strangulated femoral hernia during a remarkable operation recorded in these 'Reports,' vol. xi, p. 88. I doubt whether this patient would have recovered if the case had been tackled in a less striking manner. The subject of the removal of omentum in hernia operations was discussed and the practice apparently generally approved at the Clinical Society two years ago, but the debate was inadequately reported in the 'Brit. Med. Journ.' for Oct. 17th, 1885.

When the operation was completed it was certain that the tendon could not be absorbed, and consequently no hernia could occur for at least three months,[1] and in the meantime it was hoped that the plastic substance thrown out would be abundant, and might be trusted to fibrillate to such an extent as to form an effectual barrier against a return of the hernia. One's hopes were justified, and now, three years after the operation, the patient is quite well and wears no truss.

It is needless to add that all these operations must be in the real sense antiseptic, and that care must be taken in the preparation of the tendon.

Any tendon can be used if properly prepared. However, either reindeer or kangaroo tendon does admirably. The former I have obtained from Archangel in Russia, and a splendid selection of kangaroo tendons has been sent over to me lately from Australia by the kindness of a former dresser at the West London Hospital, Dr. Adams, of Melbourne.

Good kangaroo tendon can always be obtained of Messrs. Mayer and Meltzer.

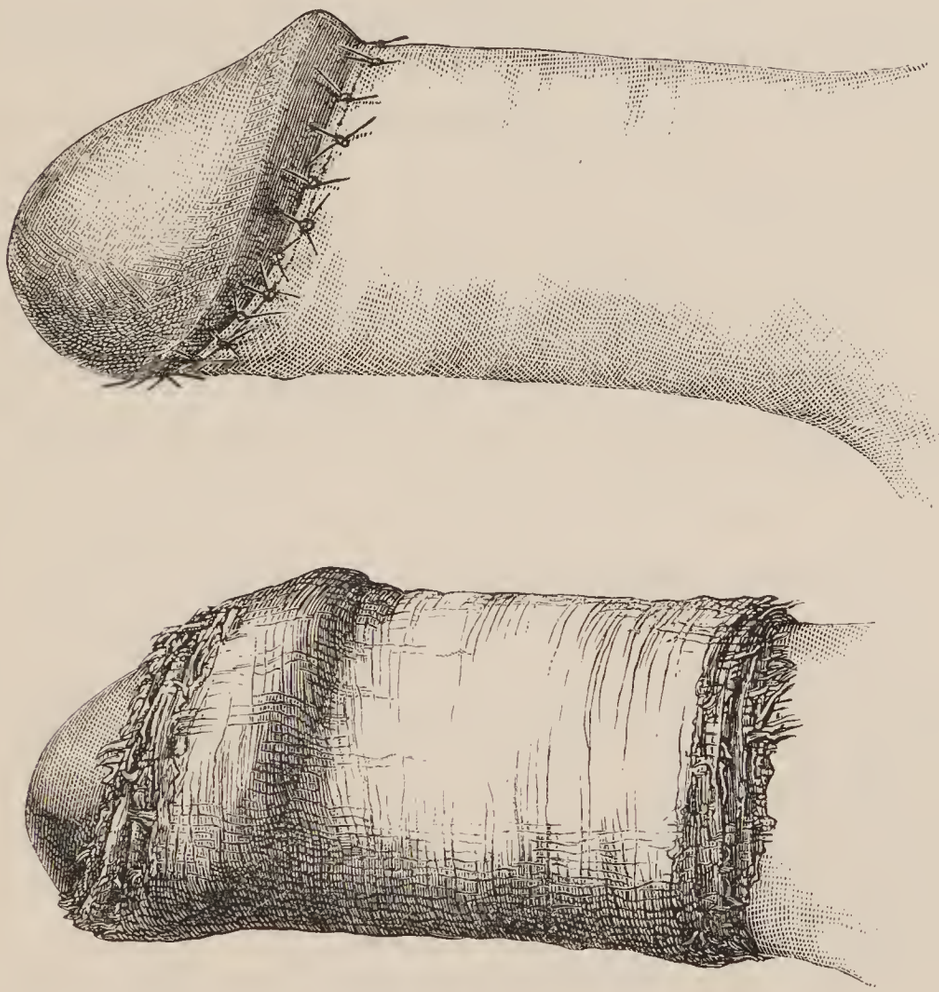
III. On Circumcision.

The pain and discomfort which follows the operation of circumcision in the adult is often very considerable. Any means by which these inconveniences would be lessened or obviated would be welcome. It occurred to me to employ in adult circumcision the same dressing which it is customary to apply after experimental lesions in animals, when every effort is required in order to obtain asepsis and the primary union of the wound. Indeed, often the experiment will fail unless the antiseptic precautions adopted are successful. Of this fact I have had special experience after removing portions of the motor area of the cortex of monkeys. The edges of the scalp are united by a large number of horsehair stitches, and then after a thorough soaking in an antiseptic solution the parts

[1] Mr. Puzey, of Liverpool, in the debate on the radical cure of hernia at the Dublin meeting of the British Medical Association, 1887, drew "particular attention to the value of prolonged rest in bed after the operation as an important item in successful treatment. He had persuaded many of his patients to lie in bed for fully two months." It appears to me that the importance of the "plan of rest" is sometimes overlooked, especially after operations for very large herniæ.

are dried with sterilised gauze. Two layers of gauze are placed over the wound, of width and length sufficient to extend some little distance beyond it, and the dressing is then brushed over several times with collodion, which soaks into the gauze and securely fixes it in position. It is this method of dressing that I have carried out with advantage after

FIG. 2.



Drawn from photographs.

The upper sketch shows the stitches *in situ*.
The lower drawing shows the dressing applied.

circumcising men. Briefly, the technique of the operation is as follows :

When the patient is etherised the outline of the posterior border of the glans is marked on the skin with an aniline pencil. The skin of the prepuce is slit and removed up to the aniline line. The mucous membrane is next cut away, leaving only a free edge of about one eighth of an inch in width.

Any bleeding which occurs should be entirely arrested and asepsis must be ensured by frequent sponging with carbolic or sublimate solutions. Numerous horsehair stitches are then inserted, so as to bring accurately together the fresh-cut edges of the skin and mucous membrane, and subsequently, after a further sponging and drying, a piece of gauze two layers in thickness, and wide enough to reach from the root of the penis nearly to the meatus, is wrapped *loosely* round the penis, and secured by several applications of the collodion brush. The setting of the collodion is hastened by the use of a fan, so that the air is kept in motion, and the patient should not be allowed to recover from the anæsthetic until the dressing is quite firm and hard.

In this manner the penis is protected by a kind of carapace, and the patient is relieved from the pain and tenderness attendant upon contact with the bedclothes or other objects. In fact, the organ can be handled as if no operation had been performed. It is hardly necessary to add that erections, which are under the usual conditions so painful, cannot occur.

The patient, from photographs of whom the drawings were made, never had any discomfort from first to last, and the day after the operation put on his trousers without my leave, and expressed himself as desirous of taking a long walk or of going to business.

The points to note are:

(1) The operation must be aseptic.

(2) The gauze should be applied *loosely*.

The dressing can be made to extend, at the will of the operator, as far forwards as the meatus externus. Half an inch, however, in front of the corona is ample. If the dressing has been put on rather tightly, and some swelling of the glans beyond the dressing occurs, this can be combated by an extension of the collodion dressing forwards to the urethra, or by the constant use of iced dilute subacetate of lead lotion. When necessary, the dressing can easily be removed by slitting it up by means of blunt-pointed scissors. It is usually worn for about a week. As yet I have never found it necessary to apply it a second time.

THE BEST METHOD

OF

DIVERTING THE URETERS AND REMOVING THE BLADDER

AS SHOWN BY EXPERIMENTS ON THE CADAVER.

By WALTER EDMUNDS and CHARLES A. BALLANCE.

The case related by Mr. Pitts last winter before the Clinical Society (now published in the twentieth volume of the 'Transactions') clearly demonstrates the futility in cancer of the bladder of partial operative measures; and it led us to experiment upon the dead body, with the view of determining the best method by which the ureters could be diverted, and the bladder subsequently removed.

It appears to us that malignant disease of the bladder ought to be looked upon exactly the same way as cancer of other organs or parts of the body which are not essential to life. In other words, a radical removal of the diseased organ should be undertaken in suitable cases rather than a scraping, nibbling, or incomplete operation which is certain to be followed by a rapid recurrence of the growth. We hold, in fact, that as soon as the diagnosis of cancer is certain by exploration or otherwise a much more complete operative procedure should be adopted than that at present in vogue. Mr. Pitts, in the paper already referred to, expresses the opinion that the measures recommended in this paper might

be carried out under certain circumstances without unwarrantable risk, and in this connection it may be remarked that at best the bladder is merely an organ of convenience, and is by no means a necessity of life. It goes without saying that a man would be better off without a bladder at all than with one which harboured a cancerous graft. Again, not a few persons go about with one urinary sinus comfortably. Why should others not go about with two ?

Moreover, when the ureters are diverted the bladder would no longer have any active function to perform—it would, in fact, simply passively exist in the body, and its blood-supply would diminish in obedience to the lessened physiological activity of the parts, so that in a given case, if it were decided to divert the ureters and leave the bladder alone, the surgeon might well anticipate a general shrinkage of the parts and a temporary arrest or slower growth of the disease, as happens in cancer of the rectum when the fæces are entirely diverted by complete division of the colon, rather than when only in part diverted by the performance of an ordinary colotomy. Given these conditions, the pain and misery attending upon micturition would be wholly obviated. Further, it may be noted that in malignant disease of the bladder lymphatic-gland infection seems to occur only at a late stage, a fact which, though perhaps true only of certain regions of the bladder, nevertheless tells in favour of radical treatment.

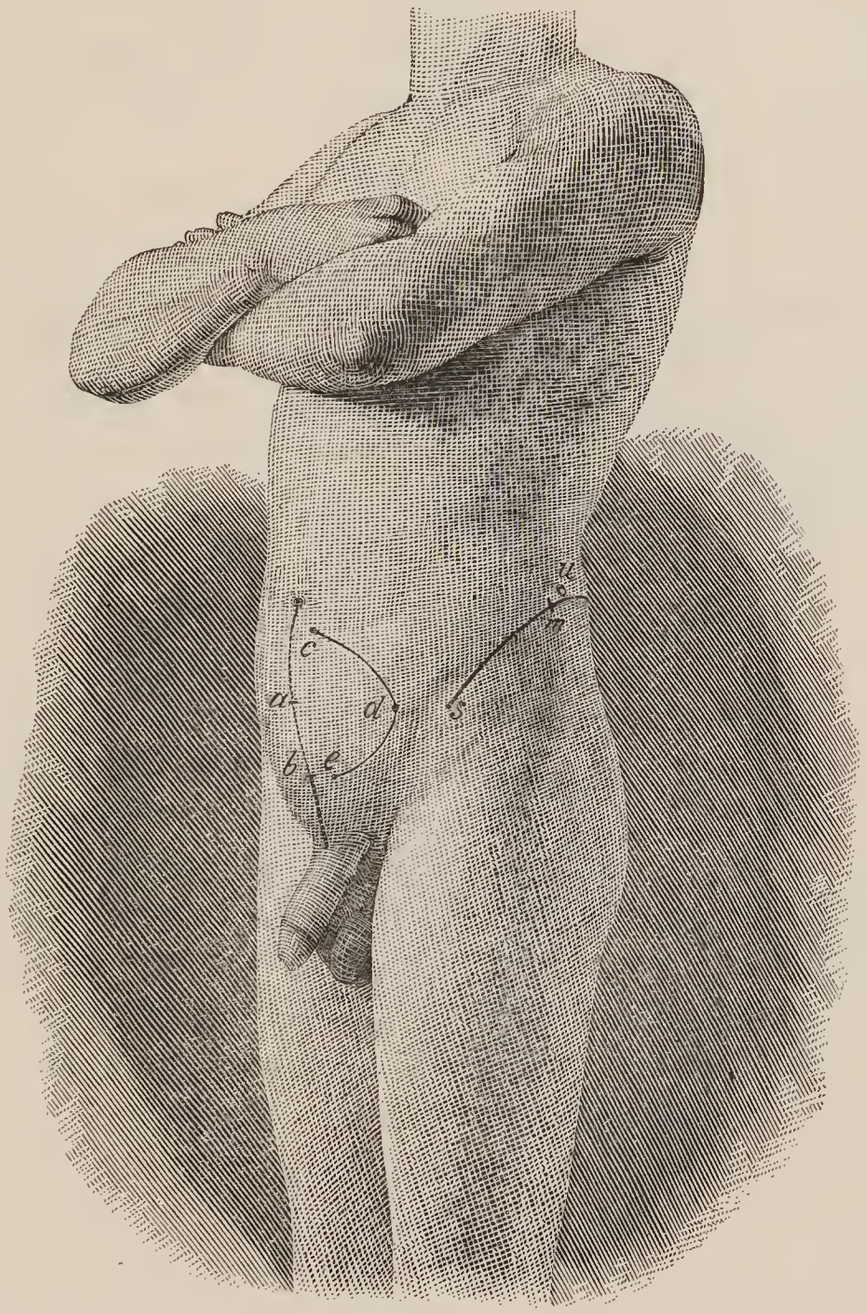
The method we recommend is as follows :—I. The first step is to divide and bring out the ureters. They had better, we think, be treated on separate occasions, and thus two preliminary operations would be required before any interference with the bladder is attempted.

The ureter can be reached by an incision through the front of the abdomen somewhat similar to that for ligaturing the common iliac artery, but the most convenient position for the incision (without allowing for variations in the size of different abdomens) is as follows :

The incision is curved, with the convexity outwards; it commences below vertically above the spine of the pubes at the level of the junction of the middle and lower thirds of an imaginary line connecting the umbilicus and symphysis pubes.

From this point it extends outwards and slightly upwards to within an inch and a half of the anterior superior spine, then upwards, and lastly upwards and inwards in the direction

FIG. 1.



From a photograph.

a and *b*. Points indicating the junction of the upper and middle and middle and lower thirds of the line joining the umbilicus and pubes. *e, d, c*. Line of incision. *e*. Vertically above spine of pubes. *d*. One and half inches from the anterior superior spine. *s*. Anterior superior spine. *m*. Mid-point of the crest of the ilium. *u*. Opening for ureter.

of the umbilicus until a point is reached vertically above the commencement of the incision. The abdominal parietes

external to the rectus are then divided till the peritoneum is reached. The skin and fascia over the rectus corresponding to the incision directions are cut through to give room, but the muscle and its sheath should be left intact. The peritoneum can now be reflected from the iliac fossa until the ureter is seen attached to the peritoneum in the region of the common iliac artery. It adheres by means of some areolar tissue to the peritoneum. If this be not borne in mind the operator will look in vain for the tube.

When found, the ureter is followed down towards the bladder, and no difficulty will be experienced in applying a double ligature of silk to it at a distance of from a half to an inch from the spot where it enters the bladder wall. It is then divided, and the proximal end brought up into the iliac fossa. Next the lower end of the upper portion of the ureter must be brought to the surface of the body, and this is best effected through a *separate incision.* The position of the opening should be immediately over and about half an inch behind the middle of the crest of the ilium. This point is at least four inches from the large incision.

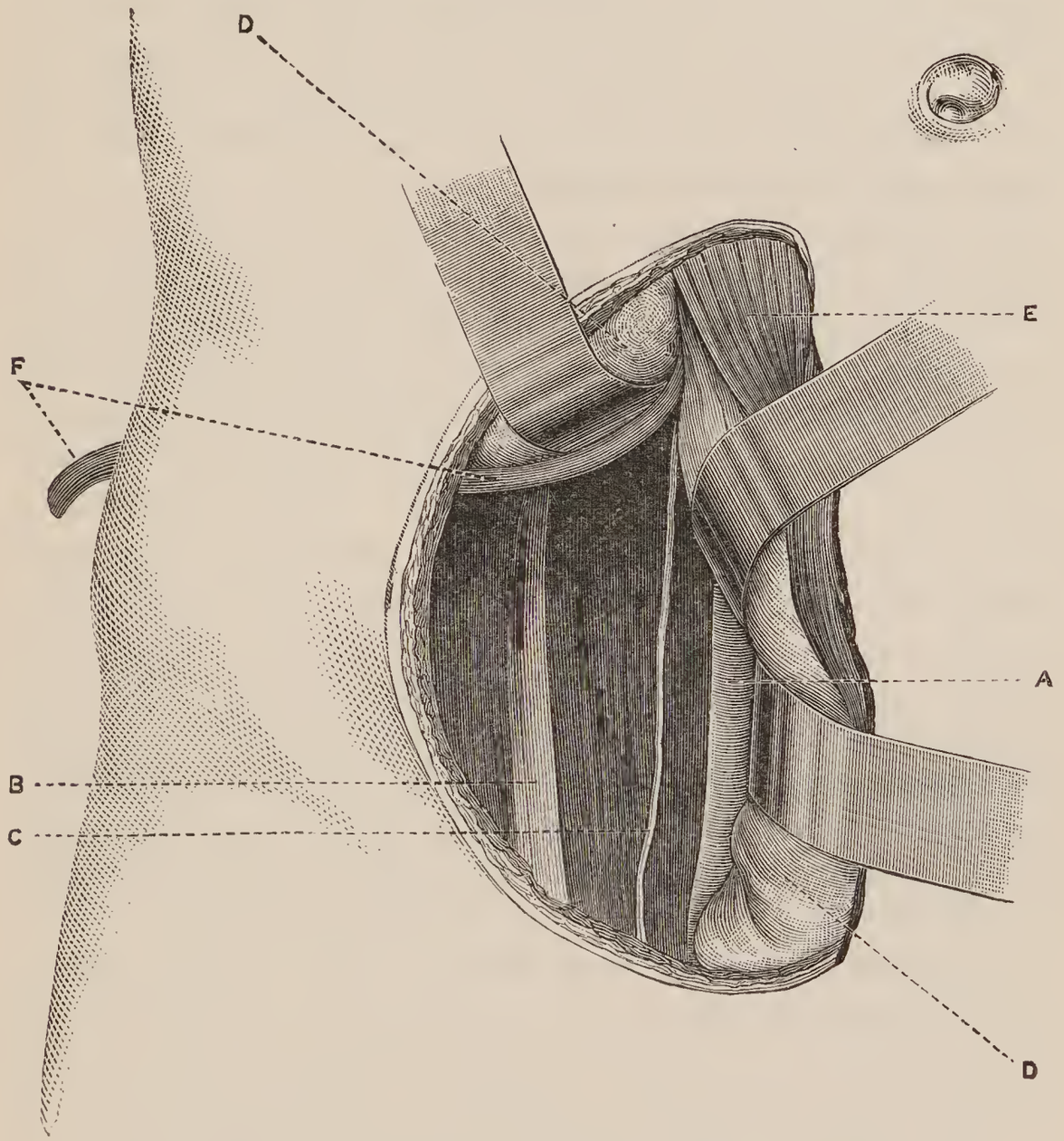
The ureter should be passed through an opening made here, which should be only just large enough to admit it, and should be secured by fine silk sutures, half an inch or more of the tube being caused to project beyond the surface of the skin. Care must be taken to separate the ureter from its bed for a short distance above the brim of the pelvis, so that it may pass to its new outlet by a gentle curve, and not be bent near the iliac artery at a right angle. It is necessary, too, that the ureter be caused to lie in contact with the posterior muscular boundary of the abdomen after it has been displaced from its old position, so that the parietal peritoneum and the intestines may readily fall back again against the quadratus and psoas, and into the iliac fossa.

It need hardly be added that immense care should be taken to asepticise the upper end of the distal portion of the ureter, that the lesser wound should be securely sealed, so that it may not be the cause, by inward leakage, of infection to the greater, and that by methods well known to surgeons the two wounds should be entirely shut off from each other—the larger wound being kept antiseptic and free from the con-

tamination of the smaller at which the urine would flow from the ureter.

II. The two ureters having thus been diverted the bladder can be excised by a supra-pubic operation. A vertical incision

Fig. 2.



The drawing was kindly made for us from nature by Mr. Shattock.

A. Femoral artery. B. Anterior crural nerve. C. Genito-crural nerve. D. Peritonenm reflected. E. Rectus abdominis (for the sake of clearness it is shown devoid of sheath). F. Ureter diverted.

having been made from the symphysis to about half way up to the umbilicus, the lower border of the peritoneum is found and the membrane is then reflected off the bladder. This is

easily done as far as the entrance to the ureters by means of the fingers and by the aid of a pair of curved, blunt-pointed scissors to snip any areolar connections, which cannot be overcome by the gentle manipulations of the fingers. We have not only frequently satisfied ourselves that this can readily be done on the cadaver, but one of us has had the opportunity of experiencing the even greater ease with which it can be carried out in the living body. The case was one of carcinoma of the upper part of the posterior surface of the bladder, which was removed after the peritoneum had been dealt with in the manner above described.

The anterior lateral and posterior walls of the bladder are now free from all attachments, and can be removed at the will of the operator. It is not desirable to attempt to take away more than the mucous membrane in the region of the trigone in consequence of the vascular and other important relations of the base of the bladder and prostate. Fortunately, carcinoma is limited at first to the mucous membrane, and this can easily be peeled off at the base of the bladder from the muscular coat. In an experiment on an infirmary body which we obtained for the purpose, the bladder was easily removed by the above method, and, to our astonishment, on turning it inside out through the small hole which constituted the junction of the bladder and urethra, a quantity of blood was discovered, and a new growth one inch in circumference, of which the man had evidently died, was seen attached to one of the lateral walls of the viscus.

As the ureters extend to the surface of the skin, stricture of one or both of the apertures of exit would not be likely to occur, so that we think that if the plan of treatment here detailed be ever adopted in surgery our patients would be free from the risks of hydronephrosis and other kidney affections which ensue when the urine is directed away from the ureter in other ways and under other circumstances, and which are the common sequences of the obstruction that follows upon prolonged cystitis, *e.g.* in cases of extrophy of the bladder and chronic untreated urethral stricture.

We may add that a good light is necessary in order to put deeply in the pelvic cavity a double ligature upon the ureter; and that either the electric light should be employed, or

bright daylight should be carefully directed into the wound by hand mirrors.

In conclusion, there are two points to which we wish to refer: 1. In the first place we desire to emphasize the beneficial and happy results which we think would follow the complete diversion of the urine from the bladder quite independent of any further operation upon the affected organ, and to point out that with the urine prevented from entering the bladder, partial operative measures, such as scraping or the use of caustics (if the radical removal of a part or the whole of the viscus was not or could not be entertained) would be attended probably with more lasting benefit. 2. And lastly, we wish to express our opinion that the subject of double urinary fistulæ and their possible effect upon the kidneys ought to be thoroughly studied upon animals before recourse is had to the above procedures for the alleviation of the miseries of patients afflicted with cancer of the bladder.

Postscript.—Since writing the above it has come to our knowledge that Glück and Zeller have successfully removed in animals the bladder and diverted the ureters to the abdominal wound. The diversion of the ureters into the rectum was invariably fatal ("Ueber Exstirpation der Harnblase und Prostata," v. Langenbeck's 'Arch.,' Band xxvi, Heft 4; Dieselben, "Zur Frage der Nachbehandlung der Ureteren nach Exstirpatio Vesicæ," 'Berl. klin. Wochenschr.,' No. 44, 1881. There is a notice of this work in the 'Centralblatt f. Chir.,' Beilage 2, 1881, p. 48).

Snamenskji, of Moscow, seems to have been equally successful with his experiments. There is an abstract of his paper, "Ueber partielle Resektion der Blasenwand," in the 'Central. f. Chir.,' No. 14, 1884, p. 223.

SOME PRACTICAL REMARKS ON THE JOINTS;

CHIEFLY IN REFERENCE TO THE FUNCTIONAL RELATION OF THE MUSCLES TO THEM.

By F. LE GROS CLARK, F.R.S.,
CONSULTING SURGEON TO ST. THOMAS'S HOSPITAL.

The form and fascicular arrangement of muscles is determined either by the function required of them, or by convenience. A simple as well as useful classification of muscles is that which accords with their function; and this in great measure decides their morphological development. Thus, we have muscles designed to move soft parts, as those of the scalp and the platysma, and those belonging to the lips and tongue, whose fibres are expanded and parallel or fan-shaped. Others enclose cavities, their use being to compress or contract the included spaces; and in this class there is great diversity of form, the fasciculi being usually laminated, and so arranged as most conveniently to exercise an uniform compressing influence. Thus, the heart has a spiral arrangement of fibre, as best adapted for rhythmic action; the stomach and bladder present examples of diverse layers of muscular fasciculi, traversing the surface of the enclosed cavities in various intersecting directions. The intestines again present a disposition of longitudinal and annular fibres, by the combined or alternate

contraction of which their vermicular movement is accomplished. The abdominal muscles, in the varied direction of their different layers, exemplify an arrangement which has for its purpose, primarily, the uniform compression of the abdomen.

Bnt the largest number of muscles is comprised in the class which move the various levers of the limbs and the trunk. The fascicular arrangement of these is determined in great measure by convenience, especially in the neighbourhood of joints; otherwise they are composed chiefly of parallel bundles of fibre, which, in their aggregate bulk, usually diminish as they approach their destined insertion into the most movable part of their attachments.

In studying the action of these, as indeed of most muscles, it is insufficient to note what they are able to accomplish individually; it is requisite, for a full appreciation of their power, to examine them collectively, and particularly in their relation to those which are their opponents. In this way muscles which, under some conditions and circumstances, are found to act antagonistically, may be shown to possess a combined power in producing certain results, which are not at first sight evident, but which are even more important than the functions they perform individually. This remark, though exemplified in various ways, is especially interesting in the relations, physiological and surgical, as well as anatomical, of the muscles which are in close proximity to joints.

The succeeding observations are intended to illustrate more especially the following axioms. 1. Muscles constitute a protection to joints against injury. 2. Under favouring circumstances they contribute to the production of dislocation. 3. They are important agents in retaining a dislocated bone in its abnormal position. 4. They aid the surgeon in reducing a dislocation, when he knows how to avail himself of their assistance.

The *Shoulder-joint* presents the most obvious exemplification of these axioms, because its varied and complex requirements demand mechanical adaptations to reconcile contending claims; and because the muscles play so important a part in providing the requisite security against displacement, which is imperiled, not only by the configuration of the joint, but by their action.

An intelligent examination of the scapulo-humeral articulation, stripped of its soft parts and with its singularly contrasted surfaces displayed, is suggestive of the conclusion, that it is a joint admirably calculated to allow of the greatest range and freedom of movement, whilst its protection against displacement has been entirely ignored and neglected: and it would greatly perplex any mechanist to supply this defect, and also to endow the humeral lever with great motive power without interference with its requisite range of movement. It would almost seem, so to speak, as if this joint had been primarily constructed with a view, exclusively, to the single requirement of extended mobility, and that the ingenuity of the constructor had been subsequently devoted to correcting the radical defects, inherent in a plan in which every other consideration had been recklessly sacrificed to this one desideratum. How is this achieved?

The first consideration of the artificer (to carry on the figurative description) would be to give a covering or capsule to the joint: and he is at once met by the difficulty of supplying one which would afford any useful protection without impairing freedom of movement. This sacrifice must not be entertained; therefore we find a thin and lax capsule which really subserves no further purpose than that of presenting a closed sac, and an extended surface over which an expanded synovial membrane is spread. Even the next stage in the construction is adverse to the integrity of the joint; for, with extended movement great power is a necessary attribute of the arm; and in order to realise this requirement large muscles are attached to the humeral lever at a considerable distance from the fulcrum:—an arrangement which, whilst it adds vastly to the power of the muscles, very materially enhances the risk of dislocation during their action. Such are the deltoid, great pectoral and latissimus dorsi muscles, with the teres major, by which the most extended and vigorous movements of the arm are achieved.

The limit of sacrifice to one all-important desideratum has now been reached, and the consideration of protection against displacement forces itself, so to speak, on the notice of the artificer; and a notable step in this direction is taken by the introduction of a somewhat complicated arrangement, whereby the socket is enabled to follow the ball in its wider range of

motion. For this purpose a pivot is formed at the sterno-clavicular articulation, on which the scapula and clavicle are conjointly moved by muscles appropriated to that office, thus constituting a shifting fulcrum, suggestive of a parallel disposition with that of the sliding seat now adopted in rowing; at the same time that those movements are controlled and limited by other muscles, as well as by ligaments. The trapezius, rhomboidei, levator anguli scapulæ, pectoralis minor, sterno-mastoid, subclavius, biceps, coraco-brachialis, are all more or less directly engaged in these actions. Then the capsule has to be strengthened, without interfering with freedom of movement; and herein is specially manifested the admirable mechanism which is to compensate for so much that has been sacrificed to the one primary requirement. The insertion of the capsular muscles is as near as practicable to the fulcrum, and their strong, expanded tendons are more or less identified with the capsule. They, in this way, invest the joint except at its lower part: but the added strength is not only a passive but also an active resistance to violence threatening to produce dislocation. This is exemplified negatively when these muscles are paralysed, and the elongated capsule permits of separation between the adjoining surfaces of the articulation, as a consequence of the feebly supported weight of the arm. But this tonic action is not all, nor is it, indeed, the most important function of these muscles, which consists in the simultaneous action of each with the parallel fibres of the larger muscles which move the lever. In this way each capsular muscle has its special office, which is that of acting synchronously with its big associate in the varied movements of the humerus, and of thus counteracting the tendency to displacement, consequent on the distance of the chief moving power from the fulcrum; and they probably all act together, when the need occurs, in keeping in close contact the articular surfaces. Their office, as rotators, is quite subsidiary to this far more important function. The long tendon of the biceps, in its fixed position, constitutes not only a passive protection to the upper part of the joint, but it helps to steady the head of the humerus; and, in conjunction with its coracoid origin and coraco-brachialis, it acts in concert with the rotator muscles, in holding the head of the humerus in contact with the glenoid cavity. It is needless to add that

the fibro-osseous roof of the joint and projecting coracoid process afford protection from external injury, but only to a limited extent against the risk of displacement.

The natural inference to be drawn from this review of the shoulder-joint is that which we know practically to be the case; viz.: that its dislocation is caused chiefly by muscular action. Indeed, so commonly is this the case, that I cannot recall an instance, within my own experience, of this injury to the healthy joint, which could be attributed exclusively to direct violence. A fall on the palm or elbow, when the arm is extended and the articular head of the humerus is, consequently, about two thirds below the glenoid cavity, is almost invariably the explanation of this injury,—the active agents being the deltoid, pectoralis major, latissimus dorsi and teres major. It cannot be denied that, by force applied even in this direction, fracture instead of dislocation might be produced by muscular action: but, if the head of the humerus resist displacement, there are two feebler points which give way before the shaft of the bone, viz.: the clavicle and the base of the radius; either of which may be broken by a shock communicated from the prone hand when the arm is extended. Almost as invariably fracture of the neck of the humerus is due to direct violence, because the position of the arm, except when extended, is unfavorable for dislocation; and the joint is protected in the directions in which shock is likely to operate, *i. e.* above, before and behind. The violent contact of the humeral head with the glenoid cavity is the actual cause of fracture of the long bone near the joint, or of a similar, though in my experience extremely rare, injury to the glenoid cavity or neck of the scapula. The interference of these capsular muscles with the treatment of fracture of the neck of the humerus is, practically, unimportant. The tilting of the upper fragment by their conjoint action, when the fracture is below the tubercles, is readily controlled, in most cases, by a suitable shoulder-splint.

Thus the integrity of this joint is due, in great measure; to the active protection afforded by the articular muscles; and further, it may be affirmed, with equal truth, that, under favouring conditions, muscular action is the direct cause of dislocation; and almost always, primarily, in the direction in which least resistance is offered by the capsular muscles. It is

superfluous to add that muscular resistance is the chief obstacle to reduction of the displaced bone, or that the efforts of the surgeon should be directed to overcome this resistance, and to place the head of the bone in such a position in relation to its articular cavity, as to engage these muscles as auxiliaries in the act of reduction. The surgeon's business is, in short, to reverse the order of events by which dislocation was caused : for, as the partial displacement of the normally contiguous relation of two articulating surfaces is an almost necessary preliminary to dislocation by muscular action, so the reduction of the dislocation must be preceded by restoring that relation as nearly as possible, in order to obtain the assistance of the muscles in the reduction.

The *Hip-joint* presents a marked contrast, in many respects, to the shoulder. Its security against dislocation is due chiefly to the depth of the socket in which the head of the femur plays, and to the strength of its capsule and its interarticular ligament. Yet the muscles immediately surrounding this joint perform a duty similar to that of the corresponding muscles of the shoulder, by acting concurrently with those which are inserted further from the fulcrum. The more limited and feebler movements of the thigh on the pelvis are probably assigned, as their special duty, to the smaller muscles clustered round the joint, which also supplement the action of the larger muscles in the extended movements where more power is required. It may be remarked that the larger masses, constituting the extensors and adductors of the thigh, act more uniformly on the whole lever than is the case in the upper extremity ; whilst the powerful external rotators are grouped more around the articulation, and serve, by their several relations to the joint, before and behind, to help each other in preserving its integrity, and in maintaining the equilibrium of the body in the erect posture. Besides the smaller rotator muscles, the position of the rectus at its origin, and of the psoas and iliacus as they pass to their insertion, is worthy of careful study, in order to appreciate the protection they afford to the joint, especially when it is most needed, viz. : in extension of the limb on the pelvis. This, indeed, is apparently the movement, with outward rotation, which exposes the joint to most risk, as we find additional provision against

displacement in the powerful reinforcement to the capsule which the ilio-femoral ligament affords, and also in the round ligament.

In studying the causes of dislocation of the hip-joint, it is difficult to assign to external violence and muscular action the relative share they have in producing this accident. But it may be safely asserted that the muscles have far less direct influence in this case than in the shoulder; and that position, combined with external violence, determines, to a considerable extent, both the displacement of the head of the bone and the direction of the dislocation. As with the shoulder, it is in that direction in which the articular head is thrown most out of its socket, that it is usually dislocated: and the greater frequency of the backward dislocation is chiefly determined by the advantage with which the more powerful muscles around the joint—especially the adductors—can act in this favorable position by dragging the head of the bone behind the acetabulum; that is when the thigh is flexed on the pelvis and rotated inwards, and thus thrown across the opposite limb. In like manner, abduction of the thigh with rotation outwards favours, by position, the forward dislocation; and force applied either by extension or further separation of the limbs, conjoined with the action of the extensors and outward rotators—especially the psoas and iliacus—completes the displacement. But these accidents are usually accompanied by external violence, as the depth of the acetabulum and the strength of the capsule constitute almost insuperable obstacles, in a healthy limb, to dislocation, by the tilting action alone of the muscles. Unquestionably muscular resistance is the chief hindrance to reduction; which, however, becomes a matter principally of manipulation, when that resistance is neutralised by anæsthetic agency.

In fracture of the upper third of the thigh muscular spasm is often a serious interference with the treatment. The preponderance of the outward rotators has to be combated; and especially that of the conjoined psoas and iliacus, when the femur is broken just below the small trochanter; the consequent tilting of the upper fragment is rarely controllable save by flexion of the thigh on the pelvis. The abductors share in causing these displacements.

The depression in the centre of the acetabulum, and its

occupation by a yielding pad of fat, is an interesting mechanical study. That it subserves the purpose of affording space for the lodgment and free play of the round ligament is manifest: but it is, apparently, designed for a still more important though less evident use. The frequent shocks to which the lower limb is obnoxious are concentrated, by contre-coup, chiefly at the hip-joint. To diffuse this shock as much as possible is an obvious desideratum; and this is achieved by distributing it around the greater part of the circumference of the acetabulum, and thence to the pelvic bones, thus relieving the centre. Were it not for this arrangement, probably the cotyloid cavity or head of the femur would be more frequently fractured, or the intrusion of the latter into the pelvis would not be the very rare accident that it is.[1]

The *Elbow* is a hinge-joint, admitting of flexion and extension, which are limited only by the locking of the ulnar processes into the sigmoid depressions on the base of the humerus. The configuration of the joint, together with its restriction to angular movement, is its defence against dislocation; and its comparative security due to this cause permits of powerful muscles being affixed to the bones of the forearm, in a position which, considering their attachments, would enable them to act at great advantage in producing dislocation, but for this protection. The sides of the joint are further guarded by strong lateral ligaments; and fibrous bands are spread over the front and back of the synovial capsule, but not of sufficient density to impede the angular movements; they are thinner behind than in front. At the elbow the radius is subordinate to, and follows the movements of, the ulna, in relation with which it is firmly held by a strong annular ligament; and its shallow cup moves on the convex articulation provided for it on the outer condyle of the humerus, in pronation and supination, as well as in flexion and extension. Some fibres of the triceps are inserted into the capsule, and by their action prevent its being nipped by the olecranon during extension of the arm.

[1] This accident I once witnessed in a young woman. The head of the bone could be felt through the abdominal wall, above Poupart's ligament, in a position which admitted of no doubt about the nature of the injury. Unfortunately she left the hospital prematurely and could not be traced.

With such efficient provision against dislocation the muscles cannot be credited with any material co-operation in protecting this joint; but they cannot be absolved from a considerable share of responsibility in the production of the various injuries in and around it, as well as in obstructing their successful treatment. The prominence of the olecranon is an almost insuperable obstacle to dislocation forwards of the ulna, unattended by fracture; and if the infrequent accident of partial lateral dislocation of the two bones occur, it is usually the sequence of external violence, directly or indirectly applied to the elbow. The most common dislocations are those of both bones backwards, and of the radius alone forwards. The two great flexor muscles—the biceps and brachialis anticus—and the great extensor of the forearm, the triceps, are all attached close to the fulcrum, and are direct antagonists; in this respect, therefore, affording the only protection they can to the joint, by neutralising the tendency of each other to disturb its normal relations. The action of the anconeus is merely supplementary to that of the triceps,—probably in perfecting the act of extension: the position of its tendon adds to the protection of the joint. The obstacles to dislocation forwards, besides the prominence of the olecranon, are the resistance of the triceps, and the impracticability of placing the elbow in a position favorable to this displacement. But these impediments exist to a far more limited extent in the displacement backwards; for the coronoid process is relatively small, and the semi-flexed position of the arm favours both the impulse propagated from the hand, and also the advantageous action of the triceps, which the combined opposition of the flexor muscles cannot resist. In like manner, the forward dislocation of the radius alone is, no doubt, due in great measure to the action of the biceps, which has no direct antagonist attached to this bone. The chief resistance to the dislocation of the ulna backwards is the anterior brachial muscle, which must be stretched or lacerated if this displacement be complete; but in most cases it is incomplete. The coronoid process may be fractured, either by its forced contact with the base of the humerus, or by muscular action: but this is rare. Another injury, in the production of which muscular action has a share, is fracture of the olecranon process. Probably this accident rarely occurs without external violence, such as a fall

on the elbow: but the triceps muscle is competent to help such direct violence, by acting in the same way as the extensor of the leg in fracture of the patella. The action of the muscles is the chief hindrance in the treatment of these fractures, and must be neutralised as far as possible by position.

The *Knee-joint* presents even a more striking contrast with the elbow than does the hip with the shoulder. The primary desideratum, indeed, in the construction of the femoro-tibial articulation is the same as that noticed in the scapulo-humeral; and unobstructed freedom of movement is obtained in a similar way, viz.: by the adaptation of an extended convex surface of cartilage to a comparatively limited and shallow concavity. The frailty inherent in this arrangement is retrieved in great measure by powerful interarticular and lateral ligaments, which simply check without impeding the articular movements, whilst they admit also of a limited amount of lateral and rotatory motion. This compensation is further supplemented by the deepening of the depressions on the tibia for the femoral condyles, provided by the interposition of the fibro-cartilages; and these subserve the additional purposes of adjusting themselves to the condyles by yielding in the varying degrees of flexure of the knee, and also of assisting to break the shocks transmitted from the foot when the limb is extended. That this property of adaptation of the semilunar cartilages exists is proved by the occasional displacement of the more expanded internal one; an accident which entirely disables the limb until the normal relation is restored by first flexing and then forcibly extending the leg on the thigh.

A thoughtful examination of this joint and of the functions demanded of it, cannot fail to impress the student with the conviction that the existing arrangement is the only one competent to fulfil these requirements. A locked hinge like the elbow, or one protected by lateral buttresses like the ankle, would be unsuitable, because the leverage, augmented by the superincumbent weight, would act at so great an advantage on the knee that fracture would be of frequent occurrence in either form of construction. This view is confirmed by the difficulty of combining strength and security, with freedom of motion, in an artificial limb, at the knee;—a difficulty which, I believe, is

not experienced to the same extent at the ankle. It should be remarked that, as the synovial membrane of this articulation is lax where it expands beneath the extensor muscles, the sub-cruræal portion of this mass is attached to the capsule, in such way as to raise it in extension of the limb, and thus secure it from being bruised by the patella.

The share which the muscles have in protecting the knee-joint from injury is auxiliary only in a minor degree, yet not without importance: and the same may be said respecting their agency in producing dislocation, which is mainly due to external violence indirectly applied to the joint. The condyloid insertion of the semi-membranosus most directly fortifies the articulation by supplying its posterior part with a powerful ligament; and a similar function is fulfilled by the insertion of the biceps on the fibular side. The ligamentum patellæ, being the real insertion of the quadriceps, protects the fore-part of the joint; and the strong fibrous expansion derived from the vasti overspreads and shields its sides. The heads of the gastrocnemius are likewise a defence to the back of the condyles, as is also the obliquely placed tendon of the popliteus. The efficiency of these muscles in affording protection to the joint against injury is not merely passive, but becomes more pronounced when most required, *i. e.* when they are actively engaged in the various movements of the limb on the body or of the body on the limb. Little or no muscular resistance is offered to the reduction of the lateral and partial dislocations of this joint. In the more serious accident of dislocation of the tibia backwards or forwards, it is the hamstring and gastrocnemius muscles which are, severally, the most active obstructives to reduction, and which must be humoured by flexion of the knee and extension of the ankle, in attempting to replace the bones in their normal relation to each other. In fracture near the condyles the attachments of the gastrocnemius enable it to displace the lower fragment by dragging it backwards.

Muscular action has a very important share in dislocation or transverse fracture of the *patella;* for both are usually due to this cause, to the almost entire exclusion of external violence. Fracture is the more frequent accident, because the extensor muscles act most powerfully and uniformly on the patella, when its position is favorable to transverse snapping of the bone; *i. e.*

when the knee is flexed. Dislocation outwards, which is the almost invariable form of displacement, depends on the greater power exercised by the external vastus and rectus, which have their origin on a plane external to their insertion, and thus tend to draw the patella in that direction: and the position of adduction and inward rotation favours this dislocation, for the same reason that knock-kneed people are more liable to it. Flexion of the thigh on the pelvis to relax the rectus, and extension of the leg on the thigh to relax the other divisions of the quadriceps, suffice to enable the operator, by manipulation, to effect the reduction.

As regards transverse fracture of the patella, the management of which is often rendered so troublesome by muscular action, probably more success would attend the old-fashioned treatment by position and rest, if more importance were attached to the imperative necessity of sufficiently protracting that treatment, especially when the aponeurotic expansion covering the sides of the joint has suffered much laceration. Fibroid union is but the primary stage of repair: consolidation takes a long time; and embryo fibrous tissue is very extensible. A patient may be allowed early liberty, but only with an extended limb; and this for three or four months, gentle passive motion being employed to preserve the flexibility of the limb. The rare accident of rupture of the rectus muscle or of the ligamentum patellæ illustrates the power of the extensor mass in the neighbourhood of the joint.

The *Wrist-joint* is remarkable in many respects. It is essential it should possess a freedom and variety of movement, scarcely inferior to that of the ball-and-socket joints; yet it enjoys peculiar immunity from dislocation. Some of its functions are associated with the most delicate manipulations; whereas others demand great strength continuously exerted; and it is these latter requirements, conjoined with the great range of movement at this articulation, which necessitates the conversion of a very mobile joint into one which is, practically, almost as fixed as if it were anchylosed. Without such power of adjustment the arm would be comparatively useless. The duty of thus fixing the wrist devolves specially on the flexors and extensors of the hand on the radius and ulna: indeed no other

sufficient explanation offers itself of the presence of such powerful muscles. They act concurrently but as antagonists: and therefore each group neutralises the special function of the other group; the consequence being that the wrist-joint is, so to speak, thereby obliterated; whilst the muscles which roll the hand and extend and flex the fingers have the advantage of acting without loss of power, which could not be the case if the wrist yielded. Thus, an effective blow could not be struck, nor a heavy body grasped or lifted with a relaxed wrist;—a condition which is exemplified in dropped hand from paralysis of the extensors, due to lead-poisoning.

The question of the mobility of the ulna in pronation and supination has been warmly discussed both abroad and at home; and many learned arguments have been adduced to prove that it must or ought to move. A simple experiment, however, is worth much theorising; and the following, in which Mr. Anderson kindly assisted me, seems to demonstrate that the radius, with the hand, rolls round the ulna, without any movement of the latter; describing the incomplete outline of a cone, of which the apex is the humero-radial articulation. The experiment was thus conducted. A partially dissected upper extremity was employed; and the humerus, with its anterior surface and the palm of the hand facing upwards, was fixed horizontally in a vice which was screwed to the edge of a table, to which the arm was, therefore, parallel. Two pins, six inches long, were fixed in the upper extremity of the ulna, at a right angle to each other; one being on the same plane as the table, *i. e.* horizontal, the other upright; the pair being used to render any movement, even the slightest, apparent. Pronation and supination were then practised, without the smallest deviation of the pins from their position. It was further noticed that pronation was arrested before rotation was nearly completed; in other words that, in complete pronation, about five ninths of the circle were due to rotation of the radius round the ulna, and four ninths to rotation of the humerus at the shoulder. It is true that, in the dead subject, limited lateral movement between the humerus and the forearm is perceptible; though probably no such movement can take place during life as the result of muscular action. It has, however, been argued that this lateral movement, alternating with flexion and extension, constitutes a spurious circum-

duction; and that in this way the relation of the upper extremity of the ulnar may be changed, by the action of the muscles, in the way suggested by those who advocate the view that the ulna takes an active part in the rotation. But this proposition requires proof that the elbow-joint is moved laterally during life; and further that such lateral movement, if it occur, can claim to be regarded, under any circumstances, as rotation of the ulna on the humerus. The appearance during life is singularly deceptive, and is due in great measure to unconscious rotation of the humerus at the shoulder, and partly to the associated movement of the scapula.

The abbreviation of the ulna at the wrist, its dwindled size, and the interposition of a fibro-cartilage between it and the carpus, all indicate the subservient relation of this bone to the radius at this extremity; and that its necessary presence is dispensed with as far as possible, so that the free mobility of the hand may not be interfered with. Indeed, the principal function of the ulna at the wrist-joint is to steady the radius in its rolling movements, the chief bond between the two bones here being the interarticular fibro-cartilage. Two supinators are opposed to two pronators of the hand, all acting on the radius: such at least is the function with which they are credited. Of these the supinator brevis alone has a special relation to the joint, surrounding, as it does the radio-humeral articulation, and attached to the annular ligament which connects the radius to the ulna. It may, however, be remarked that the long supinator has very limited power in the direction which its name indicates; and this only in extreme pronation of the hand, as demonstrated by fixing a tense cord to its origin and insertion, and then rotating the forearm. It should be named the flexor longus cubiti: for its chief, almost its only, office is as a flexor of the forearm, to compensate for the loss of power in the biceps when the hand is prone; as, for instance, in rowing: but when the arm is flexed and prone, the biceps is the most powerful supinator. The flexor carpi radialis assists the pronators.

The four movements at the wrist-joint, antero-posterior and lateral, together with the rolling of the radius round the ulna, impart to the wrist the free mobility which characterises it. An important feature in the lateral movements of this joint is

the greater degree of adduction provided for than of abduction. This is dependent on the shortened ulna on one side, and on the obliquity of the radio-carpal articulation and the prominence of the styloid process of the radius on the other,—points of considerable interest as associated with the injuries near to the wrist. Abduction is effected chiefly by the extensor carpi radialis longior and extensor ossis metacarpi pollicis; and adduction by the conjoint action of the flexor and extensor carpi ulnaris.

Though comparatively superficial, and exposed to violence by falls on the hand, probably no joint in the body is more thoroughly protected from injury by dislocation than the wrist. Observation proves this to be the case; and Dupuytren, in his 'Leçons Orales,' asserts that, in his large experience, he had never witnessed a single instance of this simple dislocation from accident,—of course in a healthy joint. My own experience confirms that of the great French surgeon: therefore, though the possibility of such an accident occurring may be admitted on the authority of others, we may be satisfied that this injury is very rare. It may be, not unreasonably, suspected that some recorded cases have been really fractures of the radius close to the joint. In seeking for an explanation of this exemption, there are several points to be considered which are worthy of separate attention, especially as the muscles take an active share in protecting the joint: and this consideration will collaterally involve the inquiry, why the radius is liable to fracture at its lower extremity.

The ligaments immediately investing the wrist-joint are sufficiently strong to offer considerable resistance to external violence, without impeding the free mobility of the joint; and a further support of importance, both direct and indirect, is afforded by the annular ligaments, especially the dense anterior one. The tendons around the joint are numerous, and belong to strong muscles; some of these, as the common flexors and extensors, pass, severally, in a common sheath beneath the annular bands, conveniently packed, but so as to provide efficient support to the radio-carpal articulation. Further and supplementary protection is afforded by other tendons confined in their proper sheaths, viz.: those of the flexors and extensors of the carpus on the radius, and of the corresponding muscles

of the thumb. When all these are in action, which they usually are when violence is inflicted, their tendons are like so many tight ligaments around the joint, binding its component parts together, and resisting the tendency to displacement, especially in the direction in which it would be most likely to occur, by a fall on the palm of the hand. Again, the structure of the carpus assists in breaking the effect of shock, communicated from the hand, by the yielding movement of the bones which compose it. But the obliquity of the wrist-joint and its adductibility constitute a very important feature in this consideration, both positively and negatively. The natural obliquity of the articulation between the radius and carpus, exaggerated as it is by the prominence of the radial styloid process, is further increased when the hand is prone, by its adduction. Thus, the shock of a fall on the palm is communicated obliquely to the radial side of the forearm, meeting the momentum due to the weight of the body at an obtuse angle at the wrist-joint, where the effects of the conjoint shock are resisted by the whole flexor mass beneath the annular ligament, and especially by the flexor carpi radialis and long flexor of the thumb, and also by the projecting styloid process of the radius.

But we must search still further for an explanation of the extreme rarity of simple dislocation of the radius at the wrist; and I think it is to be found in the fact that the violence which might otherwise imperil the joint is expended on the lower end of the radius, which gives way by fracture. To a casual observer this fracture is a perplexing problem. A lever is broken at its most expanded part, near its extremity and close to a movable joint. A consideration of the structural relations just adverted to will help to solve this difficulty. They may be thus enumerated. The ready adduction of the hand and consequent drag on the external lateral ligament; the prominence of the radial styloid process to which this ligament is attached; the obliquity of the articulation, and the propagation of the force of a blow on the palm towards the styloid side of the radius; and possibly the action of the supinator longus. To these may be added the circumstance that the cancellous texture, which constitutes the bulk of the radius at its carpal extremity, is enclosed in only a thin layer of compact tissue,

incapable of resisting much violence. Under the conjoint influence of these agencies the radius gives way near to the joint, and thus assists, negatively, in warding off a dislocation. The treatment of these fractures resolves itself into allowing the prone hand to fall into a flexed position; and this involves adduction and, therefore, traction on the external lateral ligament, and consequent antagonism to the resistance of the supinator longus and radial extensors, together with relaxation of the pronators;—all which circumstances constitute a practical commentary on some of the foregoing remarks.

The *Ankle-joint,* though in some respects resembling the wrist, presents also many points of striking contrast with the latter. It is an angular hinge-joint, but admits of some lateral movement, which, together with the gliding motion allowed between the tarsal bones, and the general elasticity of the foot, affords the necessary protection by yielding in walking or running, and especially when the sole of the foot is brought into contact with an uneven surface. I am aware that lateral movement at the ankle-joint is denied by some anatomists. But I am persuaded, from experiment, that though this motion is precluded in extreme flexion of the foot on the leg, it exists to an obvious extent in the living subject even when the foot and leg are in a rectangular relation to each other; and this quite independent of any movement between the tarsal bones. I speak both of that movement which consists of inversion and eversion of the sole of the foot, and also of that form of rotation of the foot by which the toes are adducted and abducted: the latter is due in part, but not entirely, to rotation at the knee-joint. These lateral movements are limited by the projecting malleoli and the strong ligaments attached between them and the tarsus. The resisting power of the ligaments is demonstrated by the fact that they are scarcely ever torn, though often painfully stretched: whereas the malleoli themselves are very commonly broken by force applied through these fibrous bands, the astragalus acting as the fulcrum. Indeed, the security against dislocation, provided for by the anatomical construction of the joint, is so complete, that the fracture of one or both of these prominences, or of the fibula higher up, is an almost necessary condition of displacement: but when they are frac-

tured, dislocation is a frequent sequence, from the loss of support thereby entailed.

The integrity of the ankle-joint, in its various movements, is to a considerable extent indebted to the muscles which surround it. Their value is also manifested in preserving the arched form of the foot. Although all the muscles around the ankle take part in maintaining the erect posture by poising the tibia on the astragalus, it is especially the function of the tibiales and peronei, which may be regarded as the homologues of the flexors and extensors of the carpus on the radius and ulna. The additional power of the gastrocnemial mass counteracts the tendency of the body to fall forwards, when the centre of gravity is disturbed, by acting on the condyles of the femur, and also advantageously on the extremity of the lever into which it is inserted, which is farthest from the fulcrum. The relation of the malleoli to the posterior tibial and flexor muscles of the toes on the inner side, and of the peronei on the outer, probably explains the rarity of dislocation of the foot forwards; whilst, on the other hand, the gastrocnemii may be credited with a considerable share in determining the less infrequent accident of displacement of the foot backwards. But these accidents about the ankle-joint, involving, as they nearly invariably do, fracture of the fibula or inner malleolus or both, are almost entirely due,—with the above exception and possibly in rare instances of fractured os calcis,—to external violence pure and simple. It is in their treatment that we have to take account of the muscles, which often resist reduction in compound dislocation; and also perpetuate their opposition to the surgeon's efforts to maintain a favorable position of the injured limb. They must be humoured and soothed by being relaxed; this is far better, where practicable, than to provoke them by the effort to tire them out. Such irritating management has often more than a locally mischievous consequence, by disquieting the nerve-centres in a way highly prejudicial to the patient.

The question of tenotomy under these circumstances naturally presents itself. Certainly it is not only admissible but desirable, in some instances, to divide the tendon of an intractable muscle, especially if required for the reduction of a compound dislocation or fracture; but in fracture I generally prefer to remove

a portion of the protruding bone. This practice of cutting tendons does not, in my experience, realise what might be anticipated from it theoretically. Fresh combinations in the unopposed action of other muscles develop themselves, which are as unmanageable as those we sought to evade or remove: it is better, under these circumstances, and unless the indications for interference cannot be mistaken, "to bear the ills we have, than to flee to others that we know not of."

In the *Carpus* the os magnum, and in the *Tarsus* the astragalus, are more frequently dislocated than any of their associates. But these displacements are altogether independent of muscular action. Such is not the case with the phalanges, where the agency of the muscles, in the production of dislocation, may frequently be traced, in concert with that of direct violence. This is exemplified in the case of the great toe and thumb, the displacement of which is often troublesome to reduce, owing to the resistance of the muscles added to the obstruction offered by the lateral ligaments.

The principal reasons why the *Clavicle* is not more frequently dislocated are, that it yields to external violence, and gives way more readily by fracture. Both ends are preserved in their respective relations by strong ligaments: and powerful muscles are attached to them, which, though they have little or nothing to do with either dislocation or fracture of this bone, are vexatiously instrumental in thwarting the treatment of these injuries. The trapezius and deltoid in great measure neutralise each other's action on the clavicle; and this is also partially the case with the great pectoral and subclavius, and the sterno-mastoid. No doubt the difficulty of keeping in place the dislocated acromial end of the clavicle is in great measure due to the flatness of the articulation and its dependence for its security on the integrity of its ligamentous connections: but the relations of the fractured bone are determined usually by the weight of the shoulder, and the action of the great pectoral muscle which draws the outer fragment downwards and backwards, whilst the sterno-mastoid elevates the inner fragment; or, more correctly speaking, prevents it from being depressed. Position and support are the only remedies for these difficulties.

Dislocation of the condyles of the *Lower Jaw* occurs just as does dislocation of a ball-and-socket joint, viz. : by the convex articulating surface being placed in a position favorable for muscular action to displace it. This occurs when the mouth is widely opened, as in gaping ; and the horizontal pterygoid muscles drag the condyles forwards over the articular eminences, into the fossæ in front of them. In that position they are retained by the conjoint action of all the closing muscles of the jaw ; and the reduction must be accomplished by manipulation and conquering the resistance of the muscles; after which the displaced bone is returned to its normal position by their agency.

The action of muscles on particular joints, when *diseased*, scarcely admits of being specialised with any advantage. Such action is generally, if not always, due to the completion of the reflex circle, starting from the diseased tissues of the joint, and terminating in its motor muscles. The position of a limb, assumed under these circumstances, is partly due to the instinctive endeavour to obtain relief; but still more, probably, to the preponderating power of the strongest of the contending muscles. Thus, in hip disease, the natural tendency is to angular flexion at the hip and knee, and to extension at the ankle-joint. Neglect or ill-advised and weak compliance with a patient's entreaties is the cause of many deformed and crippled limbs, where joints have been diseased, and muscular action has been unrestrained or ruthlessly opposed. Gentle coercion, if employed in time, rarely fails to afford relief, accomplishing at the same time all that is required in regard to rest and position. The remarks concerning tenotomy in injury are of still more force in their application to disease. The cases are, indeed, few which would justify recourse to this operation during the early or active stage of joint disease; though the efficacy of such treatment cannot be denied in some instances of deformity resulting from the rigid resistance of muscles, consequent on long-continued acquiescence in their perverse action.

The integrity of joints, which is due to their osseous configuration, the fibrous tissues connected with them, and the muscles which surround and move them, is dependent in

different degrees, according to circumstances, on each of these sources of strength and protection; insufficiency in any one of them being supplemented by increased efficiency in the others. As a rule the arthrodial joints admit of but limited motion, and are amply protected by their fibrous envelope, as is notably the case in the scapulo-clavicular, tarsal, and costo-vertebral joints. The angular hinge-joints—the elbow, ankle and phalanges—depend chiefly on their osseous form, supplemented by lateral ligaments, for their security: but the lateral hinge or rotating joints—the radio-ulnar and upper vertebral—rely exclusively on powerful ligaments for their integrity. The two enarthrodial articulations are unequally dependent on extraneous assistance for their protection from injury; because the one has a very shallow cup, and is endowed with almost unlimited mobility both in variety and extent; whereas in the other a globular head is received into a deep cup, to which it is connected by an interarticular ligament.

The knee-joint is almost *sui generis*, though it is more allied to the angular hinge than to any other form of articulation. It is certainly the most complex joint in its complete equipment, though very simple in its skeleton state. Its expanded surface, interarticular fibro-cartilages and crucial ligaments combine, with the broad internal lateral and other exterior ligaments, to constitute the knee one of the strongest joints in the body.

The influence of *atmospheric pressure* in assisting to preserve the integrity of joints is common to all; but in none is it so well exemplified as in the shoulder. If this joint be placed within the receiver of an air-pump, after the capsule has been carefully dissected, immediately on exhaustion of the air the weight of a few inches of the humerus suffices to produce dislocation; but, on re-admission of the air, the head of the bone again rises into contact with the glenoid cavity. When the shoulder drops, in consequence of paralysis or wasting of the muscles, the elongated capsule is occupied by synovia;—a pathological demonstration of the value of these muscles in retaining the head of the humerus in its normal position.

The action of different muscles on the joint may be usefully illustrated by attaching strong india-rubber bands or cords to

the skeleton, in positions to represent the attachments—origin and insertion—of the principal muscles disposed around the joints; to the exclusion, of course, of any other connecting medium between the bones. If a joint be then moved into the position in which experience has shown that dislocation is produced most readily by muscular action, the elastic bands, by imitating that action and with the assistance of a little manipulation, exemplify the mode in which it operates in the living subject. This remark applies chiefly to the ball-and-socket joints; but the method is also available for demonstrating certain deformities consequent on fracture near to joints.

CASES

OF

HYSTERIA AND ALLIED CONDITIONS,

IN THE TREATMENT OF WHICH

ISOLATION, ELECTRICITY, AND MASSAGE WERE USED.

By SEYMOUR J. SHARKEY.

In vol. xiii of the 'St. Thomas's Hospital Reports,' I wrote a short paper on "Two Cases of General Atrophy treated by the Weir-Mitchell Method." This plan of treatment[1] had been somewhat recently introduced into this country by Dr. Playfair, and the two cases recorded in that paper were the first which had come under my own care. After explaining, in more or less detail, the method known by the name of Weir Mitchell, and what appeared to be the *rationale* of it, I ended the paper as follows:—"By the 'Weir-Mitchell' plan of treatment such patients can be supplied with muscles, the absence of which would make their recovery, if not impossible, at least very tedious; and the process by which their muscles are restored to them involves such changes in the condition of their nervous, glandular, and other systems, that they too recover their normal functions.

"We do not assert that no cases corresponding with the description we have given get well unless treated by the

[1] For a description of it see 'St. Thomas's Hospital Reports,' vol. xiii.

'Weir-Mitchell' method, but only that the latter affords an intelligible and singularly successful plan of treatment.

"Those medical men who still scoff at it, do so either because they have never witnessed it, or because they have tried it in ill-chosen and unsuitable cases, or, finally, because they are so accustomed to associate 'miraculous cures' of hysterical cases with quackery that they are no longer capable of forming a fair judgment of any treatment, however rational, professing to deal with a set of cases which have been branded with the name hysteria."

This, it must be allowed is strong language; but it was used because it appeared to me that the treatment in question was one of the best additions to modern therapeutics, and one which, nevertheless, was in danger of being held in undeserved suspicion. Since I wrote the paper referred to, I have treated many cases in this way, and all with success. Not that I would mention this with pride or boasting, for I rather fear that I have purchased this exemption from failure by a too rigid exclusion of cases which I did not feel confident of succeeding with,—cases which, even if they had left much to be desired as regards the final result, might nevertheless have been greatly benefited.

In the present paper I am about to give a short history of six of these cases, from which the reader may judge for himself as to the merits and demerits of the treatment.

Case 1. *Hysterical paraplegia. Treatment by isolation, massage, and feeding. Recovery.*—C. H—, æt. 37, was admitted into St. Thomas's Hospital on May 3rd, 1885, under the care of Dr. Bristowe, and was discharged on July 4th. Dr. Bristowe very kindly asked me to undertake the treatment of the case, as he knew something of the patient and her family, and therefore thought it better that she should be under someone else.

There was a marked history of phthisis in the family; as to the prevalence or absence of nerve disease, however, the patient could give no information. Her eldest daughter, then aged thirteen, was subject to occasional short fits of "laughing and crying."

The patient herself, when a child, had rheumatic fever

and measles, but up to the age of twelve and a half years enjoyed good health. It was then that the catamenia first appeared, and they were rather profuse for the first twelve months, but after that, until her marriage at twenty-three, they were scanty, irregular, and always accompanied by a great deal of pain. At those times she was either very much depressed, or in unusually good spirits.

At the first appearance of the catamenia, or shortly after, she was laid up for six weeks with paraplegia, and also had some hysterical fits. At the age of fifteen she had a second attack of paraplegia preceded by a fit, and accompanied by loss of sensation in the hands and feet. From fifteen to twenty-three years of age she was constantly in the doctor's hands, suffering from debility, constipation, and dysmenorrhœa. At school she could never study much as it brought on headaches. When twenty-one the patient had another attack of paraplegia and hysterical fits.

Nine years ago the patient's third child was born, and since then she had been in a very unsatisfactory state of health, eating hardly anything except when pregnant,—then she could eat any kind of food. Four and a half years before admission into St. Thomas's she had yet another attack of complete paraplegia accompanied by vomiting; with this she was confined to bed for seven months. But during the last six years she had never walked out of doors, and for the fourteen months before coming into hospital she had not left the bed or sofa except to be wheeled out in a Bath chair. She had also had well-marked hysterical fits once or twice a month, especially at the catamenial periods.

She had taken brandy lately in excessive quantities, sometimes consuming two and a half bottles a week. She had also been in the habit of taking laudanum, injections of morphia, and tincture of lavender.

On admission she was pale and sickly looking but not emaciated. She spoke in a languid manner, and every now and again had convulsive twitching of the muscles of the face and of the arms and legs. No visceral disease could be detected. The patellar and plantar reflexes were well marked; no ankle-clonus, slight knee-clonus on right. The feet were kept in an extended position but there was

no rigidity. The legs were wasted and the patient was unable to stand by herself. No affection of sensation, no loss of taste or smell, and no colour-blindness.

On May 26th the patient commenced the ordinary Weir-Mitchell treatment and improved very rapidly, so that she left the hospital on July 4th, being then able to walk about for an hour and a half each day, and having increased $20\frac{3}{4}$ lbs. in from five to six weeks. On admission her weight was 7 st. $1\frac{1}{2}$ lbs., on leaving 8 st. $8\frac{1}{4}$ lbs. She would have been kept longer in the hospital to ensure permanence in her improvement but she insisted on going back to her family.

I have just had a letter from her husband in reply to my inquiries about her condition, and dated December 2nd, 1887, in which he says, "I have much pleasure in replying to your inquiry respecting my wife. We think we may consider the cure permanent, for she has never relapsed into the condition she was in when first under your care in 1885. Although she has not been able to walk out of doors like other women she is active in-doors; quite a different creature to what she was before the massage treatment. She often wishes for another dose of it when not feeling as well as usual."

I am quite aware that it may be said that abstention from morphia may account for this patient's recovery. But although this may have been one factor I do not think it was an important one as she had not taken it regularly and she showed none of the symptoms which are present when morphia is withdrawn from those who are habituated to the use of it.

Case 2. *Patient nearly bed-ridden, emaciated, and, in addition, a morphia habituée. Recovery.*—L. B—, æt. 32, single, was admitted into St. Thomas's Hospital under my care on July 21st, 1885, and was discharged on September 25th, 1885. I had seen her some time previously at her own home, and had expressed the opinion that what is usually termed the Weir-Mitchell treatment would be successful in her case.

She was one of a family of thirteen children, eight of

whom were living, and all healthy, with the exception of herself; three sisters had died of consumption and two others when infants. Her father and mother were dead, but during their lives they had enjoyed good health. Seven years previously her father had died at the age of fifty-eight.

For seven years or more the patient had been subject to what she called "gastric attacks," the symptoms of which were great abdominal pain, vomiting, and relaxation of the bowels. Twelve months after her father's death one of her sisters died and she nursed her during her last illness. Her health was much affected by this but she recovered.

Her present illness, she said, commenced three years and a half ago with vomiting, diarrhœa, and pain in the left side of the abdomen, and she had been gradually getting worse, and had lost much flesh. For eighteen months previous to her admission into the hospital she had kept her bed, occasionally leaving it for the couch.

During the whole illness the catamenia had been regular. For three years she had been taking one or two grains of morphia a day. Her usual food was about as follows:—Breakfast, one cup of coffee, with or without a small piece of bread and butter. For lunch, a cup of bread and milk. At 3 p.m. a cup of corn-flour. At 5 p.m. a cup of tea, and before going to sleep a cup of milk, with or without bread. She had occasionally tried a mouthful of meat, but as soon as she took food of any kind, liquid or solid, she suffered great pain in the abdomen.

On admission, she was a sallow, thin, woebegone-looking woman, weighing in her clothes 6 st. 2 lbs. Her tongue was thickly coated, and she had marked hyperæsthesia on pressure over the left pelvic region, and under the left costal arch; there was no anæsthesia. Her muscular power was very small and patellar reflexes very brisk. Nine years ago she weighed 7 st., and this was her maximum weight.

The patient was submitted to the treatment which I described in my former paper on the subject of neurasthenia, but electricity was not used. The masseuse was a very good nurse, but had never done massage before, and the patient was habituated to the use of morphia, which was

suddenly stopped when the treatment commenced. For the first week she did not gain at all in weight, and suffered from insomnia, flatulence, and indigestion, which probably were the results of stopping the morphia. After this she gradually improved and increased in weight and in health. On August 19th her diet was as follows:

Breakfast.—Three slices of ham, three slices of bread and butter, four pieces of toast, one egg, and two cups of coffee.

Dinner.—Wing, breast, and leg of a fowl, three slices of bread, two potatoes, cabbage, a glass of stout, custard, and fruit.

Tea.—Two pieces of toast, one egg, two cups of tea.

Supper.—A chop, two slices of bread, and a glass of stout.

In addition to the regular meals, she took four pints of milk in the twenty-four hours. She then had no pain or indigestion, her bowels were regular, and she slept well.

When she left the hospital on September 25th she had gained 15 lbs., was well, in good spirits, and able to walk about. She was sent for a while to the country for change of air, and she has continued in perfect health ever since.

In this case I think the stoppage of the morphia was a very important factor in her recovery, the latter being only hastened and rendered more complete by the rest of the treatment.

Case 3. *Long illness—removal of both ovaries, and later removal of uterus. Extreme emaciation and debility. Recovery.*—M. B—, æt. 42, single, was admitted into St. Thomas's Hospital on April 2nd, 1887, and was discharged on August 4th, 1887.

Her mother (æt. 67), her father (æt. 49), and sister (æt. 38) all died of "asthma." Her father had had the disease for fifteen or sixteen years, her mother for three or four years, and her sister from birth. There were no other serious illnesses in the family, but her only brother (æt. 41) was said to be very "nervous."

The patient had had childrens' diseases and "pleurisy"

fourteen years ago, and about the same time "ulcer of stomach." She had always been an ailing person, but she had been much worse for the last fourteen years. During this time she had been subject to severe pain in the left side of abdomen, low down and pretty constant, and she often had morning sickness. Her periods were accompanied by great "floodings."

Five years ago she was admitted into the Samaritan Free Hospital under Dr. Bolton, and had something done under chloroform. She left the hospital in two months not much improved, and remained under Dr. Bolton's care until he transferrred her to Mr. Meredith for operation. The latter found both ovaries diseased, and removed them. She went home and improved considerably during the next four months, the catamenia being absent. Then, however, her floodings came on again very badly, and she had to be admitted into hospital again on May 1st, 1884. Something was done, but since then she had never been capable of any greater exertion than that of getting out of bed on to the sofa, and she had never been out of bed for more than three hours on any one day. The hæmorrhage, however, stopped for six weeks, and then returned so badly that she used to have it for three weeks and then be free from it for seven to ten days, and so on.

In July, 1885, she was again operated on by Mr. Meredith, and the uterus was removed for "fibroid disease." She never had any bleeding after this, but she had been confined to bed ever since, and had steadily lost flesh.

About October, 1886, constant abdominal pain and sickness after everything she took came on, and was accompanied by an "abscess in pelvis," which discharged *per vaginam* for a day or two. Then the pain improved greatly, but the constant vomiting continued up to the time of her admission into St. Thomas's Hospital under Dr. Stone's care. The latter was kind enough to transfer the patient to my care on April 26th. She was then in a very emaciated condition, and weighed 4 st. 12 lbs. 2 oz., her weight on admission on April 2nd having been 5 st. 2½ lbs. She was listless and unable to take food, owing to anorexia and frequent retching and vomiting. Her tongue was coated, bowels

confined, and she complained of pain in the left iliac and in the hypogastric regions. The scar of an abdominal section extended from the pubes to the umbilicus in the middle line, and the recti muscles were rather rigid. No evidence of disease of any internal organ could be discovered. *Per vaginam* a small os uteri was felt fixed to the external scar by a piece of tissue, apparently about three quarters of an inch in thickness.

On April 26th, when the case came under my care, she was taking half a pint of peptonised milk and one ounce of brandy daily. Massage was commenced, and the rest of the treatment already described except electricity, which was not then applied. Moreover, I told the nurse not to rub the abdomen. The first nurse who undertook the case got German measles, and the next had to relinquish her duties after two days on account of some affection of her eyes. It was not, therefore, until May 11th that I succeeded in getting a nurse capable of prolonged attention to the case. She had had no experience of such work, but fortunately was an apt pupil, and a thoroughly good and sensible nurse. The patient required a great deal of management, but all went on well, the main symptom requiring medicine being constipation, which was obstinate. Sulphate of soda was used and had the desired effect. Late in the case, *i. e.* on July 7th, the interrupted current was brought into use, mainly because the patient, though plump and well, seemed to lag behind as far as walking was concerned. This addition to her treatment had a good effect, and she soon got about very fairly. My note on August 4th, when she was discharged, was as follows :—"Is now practically well, except that she limps somewhat on the left leg, which she attributes to weakness of ankle; to me it appears to be rather from some general stiffness of the leg. Whatever the cause, however, it must be of but little importance, as both legs can be moved with ease in all directions while that patient is lying down. She sleeps and eats well, but requires a little sulphate of soda to open her bowels." At this time she was walking for about one and a half hours twice a day.

The weights which she remembered at various periods

of her life, as well as those recorded in St. Thomas's Hospital, were as follows:

	Stone.	lbs.	oz.
About 16 years ago	9	3	0
After the second operation . . .	8	7	0
On admission into St. Thomas's . .	5	2½	0
April 23rd, 1887	5	1½	0
„ 27th, „	4	12	2
May 11th, „ (massage commenced) .	4	12	0
June 1st, „	5	12½	0
„ 15th, „	6	6	0
„ 29th, „	6	11½	0
July 13th, „	7	4	6
„ 27th, „	7	5½	0

This patient had long been a helpless invalid, and had been waited on constantly by her friends, and the sister of the ward informed me that she had no desire to get well, and that her friends were quite sick of her, and anxious to be permanently rid of her. They had all hoped to get her into a hospital for incurables, and she desired nothing better herself. All therefore were disappointed at the success of the treatment, so that it is more than likely that they may still find a means of accomplishing what they desire.

Case 4. *Neurasthenia in a stout person. Dyspepsia. Treatment by reduction of food to a minimum, followed by massage and ordinary diet. Recovery.*—A. C—, æt. 40, single, had been under the care of Dr. Gosse, of Eccleshall, Staffordshire, who sent her up to London to be under my care. She was admitted into St. Thomas's Home on August 12th, 1887, and was discharged on November 7th, 1887. Until the age of thirty-three she had never had any serious illness but was an active healthy woman. She stated that her illness commenced eight years ago, but she could assign no cause for it. Her father and mother were then dead and she was living with her aunt, who died very suddenly about that time. This was a great shock to her,—she lost her home and had to stay with friends; still there was no reason why she should have got ill as they were very kind to her. Nevertheless, a year and a half after her aunt's death (*i. e.* ten years ago) she began to ail, giddiness in the head, uncer-

tainty in walking, pain in the epigastrium and back, sensation of something rising in the throat, occasional vomiting of "phlegm" but never of food, and a feeling of great fatigue, were her early symptoms. She could read, write, and walk until five years ago, but on admission into St. Thomas's Home she could neither read nor write for any time and could only walk a little with great difficulty. During this period she lost much weight. Then she went to Malvern (four years ago) and was under Dr. Henderson, and remained there nearly three years, being treated by hot-packing, rubbing of the feet and legs with brandy, application of hot cloths to the head, and the administration of a good deal of food. The result was that she got very stout, much stouter, indeed, than she had been when in health. Notwithstanding this gain in weight she lost strength, and when she came under my care she stated that she was about the same weight as when she left Malvern thirteen months before. Until her health failed the catamenia had been rather irregular, but since then they had gradually become regular.

During the last year she had suffered from much burning pain in stomach and flatulence. Both the patient herself and her friends considered that she ate very well; her bowels were regular but she slept poorly. For eighteen months she had always taken charcoal after her meals.

In the correspondence which passed between Dr. Gosse and myself I had not realized that she was not one of the ordinary type of cases which lend themselves favorably to the Weir-Mitchell treatment, and I was not a little astonished when I saw her to find that she was an abnormally fat woman, in fact she was very stout, and had a good many red blotches about her nose and face. She was pretty lively both in aspect and in conversation. The tongue was a little coated; pulse 100, undergoing frequent alterations in rapidity. The abdomen, arms, and mammæ were unhealthily fat while the legs were small. There was no paralysis, and the patellar reflexes on both sides were unnaturally brisk; after each tap on the tendon several contractions followed in succession. There was no ankle- or knee-clonus. Many points of hyperæsthesia were found in the upper and lower

part of the abdomen, in the mammary regions, on the occiput, in the neck and down the back. There was no evidence of visceral disease.

Looking at the facts that she was, generally speaking, too stout, stouter than she had been when in health, and, secondly, that her legs were very small, I determined to try and reduce her by giving her the smallest quantity of food which would keep off the unpleasant sensations of hunger, and that I would then employ massage and electricity to try and increase her muscular power. Weir Mitchell advises that cases in which corpulence is present should be reduced by spare diet and then rubbed and fed rather excessively, as is done in the thin patients. It seemed to me, however, that if I succeeded in reducing her weight it would be well to keep it reduced so that I determined to give her good meals during the period of massage but not to press her to take large quantities of food. I began, therefore, by giving her simply skimmed milk in quantities of from two to three and a half pints in the twenty-four hours. To this I had to add a pint of beef-tea to prevent the sinking sensation she soon complained of. With this diet, which was continued for a month, her weights were as follows:

	Stone.	lbs.	oz.		Stone.	lbs.	oz.
Aug. 13th . .	11	2	0	Sept. 1st . .	10	7	14
„ 19th . .	10	13½	0	„ 4th . .	10	6	4
„ 22nd . .	10	11	2	„ 8th . .	10	4	2
„ 26th . .	10	11	0	„ 12th . .	10	3	10
„ 29th . .	10	9¼	0				

Massage was then commenced, and a fair but not excessive diet ordered. Weights then were:

	Stone.	lbs.	oz.		Stone.	lbs.	oz.
Sept. 21st . .	10	1½	0	Oct. 14th . .	10	3½	0
„ 28th . .	10	3¼	0	„ 26th . .	10	1	0
Oct. 8th . .	10	3½	0	Nov. 7th . .	9	13	0

During her whole treatment she suffered more or less from dyspepsia, which was treated with a variety of ordinary drugs at first, but as they seemed to have but little effect they were given up. The indigestion gradually got less, and the patient got stronger and able to walk freely for

several hours each day, and she was discharged in very fair health, and went to Brighton on November 7th.

Case 5. *In which the patient had very rapid breathing and heart's action, and had been bedridden for ten months. Complete recovery in seven weeks.*—E. G—, æt. 21, was admitted into St. Thomas's Hospital under my care on August 11th, 1887, and was discharged on October 1st, 1887.

Her mother was alive and healthy, her father died of "liver disease." She had four brothers and sisters, all healthy, and three others had died in infancy. The first illness which the patient recollected was at the age of seven or eight, when she suffered from very severe headaches about once a month, unaccompanied by sickness or other trouble.

At the age of fifteen she had "pleurisy," which lasted three or four weeks, and then left her quite well.

In 1883 both she and her sister had "scarlet fever," and ever since then she had been subject to "rheumatism," but had never been confined to bed by it. Soon after she got "typhoid" fever, and this was followed by "intercostal neuralgia."

The present illness she dated from May, 1886. It came on gradually, without evident cause, with fainting or "catching in breathing" when she laughed or cried. She got worse and worse, her breath shorter and respiration more rapid, until she was confined to bed ten months ago, and had remained so ever since. For two months (February and March) she was sick after everything she took, and though this trouble then passed off she had taken very little nourishment during her whole illness. What food she had taken gave her no discomfort. Her bowels and catamenia had been regular. She had never been weighed, but thought she had not lost much flesh.

I saw the patient some months before her admission into hospital, with Dr. Thomas, of Peckham, when she was confined to bed. I found her propped straight up with pillows, and breathing very rapidly. Respirations then were about 120 a minute. On my asking whether it was often so, both the mother and doctor said this had been so for ten months.

The mother further asserted that it remained the same whether strangers were there or not, and that she never noticed much difference.

On admission into hospital on August 11th, the patient was a thin, pale, woebegone-looking girl, with drooping eyelids and very rapid respirations. The lips, however, were not blue, but the nares dilated regularly with each inspiration, and the latter was accompanied by the sound usually present in great dyspnœa. Respirations were 104 in the minute and regular. Pulse 130, regular, small. No murmurs were heard and there was no hypertrophy. No disease of lungs, abdomen, kidneys, &c. Tongue normal. No loss of sensation. Legs were very weak, so that patient could oppose but little force to prevent movements in any direction. She could not walk at all. Measurement of legs below knee in largest part ten to ten and a half inches. The ordinary course of treatment was commenced and carried out, so that she left the hospital perfectly well in seven weeks.

Respirations and pulse varied greatly, and were clearly influenced very much by the emotions, and by the appearance of strangers. But as the patient put on flesh and got stronger, and little attention was paid to her breathing, she quieted down to a normal rate. On leaving hospital—

Right leg below knee measured 12 inches.
Left „ „ 11½ „

Her weights were as follows :—

	Stone.	lbs.	oz.		Stone.	lbs.	oz.
Aug. 13th	5	13	7	Sept. 20th	7	10	6
„ 30th	7	0½	0	Oct. 1st	8	3¾	0
Sept. 13th	7	11	0				

Case 6. *Hysterical paralysis of left leg of ten years' standing. Extreme hyperæsthesia. Treatment by rubbing, electricity, &c. Recovery.*—Miss M—, æt. 37, was brought to me on May 26th, 1885, on account of paralysis of the left leg of ten years' standing, which had rendered her incapable of walking. It had originated in shock at her father's death, and had from the first been accompanied by twitchings. At the age of seventeen she had had "St. Vitus's dance," and

she had also been liable to hysterical fits. The catamenia were regular, but accompanied with pain in the abdomen.

Her sister, who brought her, said that she was quite unmanageable at home, and always had her own way; that for a long time she had not wished to get well, but that now she did.

She was a fine, well-developed, well-nourished woman, but was carried into my room. She was incapable of putting her left leg to the ground, and the limb was atrophied, and the foot somewhat stiff and distorted. All over she was intensely hyperæsthetic, but the left side was more sensitive than the right. Touching almost any part produced the most violent starts, and on trying the patellar reflexes the whole body was convulsed. No disease of any organ was present, and there was no reason to consider that the paralysis of the left leg was due to any gross organic lesion, although the limb was an inch smaller than the right when measured round the calf.

I told the sister that I thought if the patient were sent to London away from her friends that one might succeed in curing her, but that I was doubtful. She returned to her home in Shropshire, but on October 6th came back, and entered the Fitzroy Home under my care. I had ordered her arsenic when at home, but she took it without benefit for six weeks. Her hyperæsthesia was developed to a most astonishing degree. When talking on general subjects she lay still and natural in bed. But when I said, "Now I will just examine you," and began to move the clothes, irregular, violent movements of limbs, trunk, head, and neck ensued, so that it was very difficult to steady a limb, and when the arm was rubbed the patient was generally convulsed. When the rubbing was stopped and the patient made comfortable she smiled and said she was sorry, but she could not help it.

I thought it advisable to begin the treatment with rubbing in this case for two reasons, first, to bring up the muscles of the left leg to their natural size, and secondly, to get rid of her intense hyperæsthesia. She was told that when her leg was normal in size she would be expected to use it.

When the rubbing was commenced, the nurse, who was rather a slight person, informed me that the convulsions were

so great that she could not manage it. A very strong, big woman, well-accustomed to massage, was substituted for her, and succeeded. It took nearly a fortnight's rubbing to produce the desired effect, and after that time she was quiet and did not mind the process.

By November 10th the left leg had increased nearly an inch in circumference, and was considered to have reached its proper size. For ten days the application of the intermittent current to the affected leg had been added to the other treatment, at first producing a scene of wild convulsion, but afterwards being borne with more resignation. Up to November 12th we failed to get her to put her foot to the ground, but on that day, after measuring the limb and testing the muscles electrically, I pretended to be very angry, told her that she was merely hysterical and could use her leg quite well if she tried, and left, saying that it was a humiliating exhibition.

My next visit was on the 15th, and I saw at once a great change, both nurse and patient being evidently anxious to show the alteration for the better which had occurred. She walked, very haltingly, it is true, but still she walked, with but little support, across the room.

Knowing how she hated the battery, I said that as soon as she walked without limping I would shorten the time of its application.

This she did on the 20th, and I asked her to try a step on the stairs, and succeeded in getting her up fifty steps to the weighing machine, on condition that I entirely stopped the battery. On the 22nd she walked round Fitzroy Square with me, and on December 7th she returned home, having gained thirteen and three quarter pounds in weight and being able to walk, but still with a limp. After her return home she got quite well and remains so still, enjoying life and getting about like other people.

REMARKS ON THE DIFFERENTIAL DIAGNOSIS

OF

INTRACRANIAL AFFECTIONS SECONDARY TO DISEASE OF EAR.

By WALTER EDMUNDS.

It is, unfortunately, not uncommon for disease of the ear to cause inflammation of the brain or its membrane. These conditions are very serious, it may, therefore, be useful to consider their diagnosis, more especially as some of them admit of relief by surgery.

When disease of the ear extends beyond the temporal bone it may cause one or more of the following affections.

(1) Abscess between skull and dura mater.

(2) Inflammation and thrombosis of cerebral sinuses, which may or may not be septic.

(3) Suppuration between dura mater and brain.

(4) Meningitis.

(5) Abscess of temporo-sphenoidal lobe.

(6) Abscess of cerebellum.

1. The symptoms of suppuration between the skull and dura mater are: pain, swelling, tenderness and redness of the skin over the locality of the abscess; at least, such were the symptoms present in a case under my care, and in which trephining was practised, with the result of evacuating about

an ounce of pus from this position. The patient was relieved, but subsequently died of thrombosis of cerebral sinuses with pyemia.[1]

2. The symptoms of inflammation and thrombosis of the cerebral sinuses will vary according to the sinus affected.

In the case of the lateral sinus the plugging may extend into the emissary veins behind the ear, causing in this region œdema and tenderness, a condition which has been called a phlegmasia alba dolens in miniature, or the inflammation may extend down the internal jugular vein, causing tenderness in the neck.

The symptoms of thrombosis of the cavernous sinus have been recently studied by Coupland.[2] He divides them into those due to the obstruction to the circulation and those due to interference with the nerves; from the first cause result:

(*a*) A certain amount of proptosis.

(*b*) Œdema of the eyelids and chemosis of the conjunctiva when the thrombosis extends into the ophthalmic vein.

(*c*) Œdema of the face when the facial vein is thrombosed.

(*d*) Enlargement of the frontal veins, due to diversion of the circulation through the orbito-facial anastomosis.

The symptoms due to interference with nerves are:

(*a*) Supra-orbital neuralgia due to irritation of the first division of the fifth nerve.

(*b*) More or less paralysis of the muscles of the eye, which may amount to complete ophthalmoplegia due to affection of the third, fourth, and sixth nerves.

The thrombosis may extend through the circular sinus to the cavernous sinus of the other side, in that case the symptoms will appear on the opposite side.

If the phlebitis is septic, there will be, in addition to the symptoms of thrombosis, irregular temperature, rigors, profuse sweating, and probably also pulmonary symptoms due to septic embolism.

3. Suppuration between the dura mater and brain would produce impairment of the function of the portion of brain

[1] 'Brit. Med. Journ.,' 1883, vol. i, p, 309.

[2] 'Ophthalmological Soc. Transactions,' vol. vii, p, 228.

pressed on, and also the general symptoms of pressure on the brain, namely, slow pulse, subnormal temperature, and torpor, but an abscess in this situation would probably be accompanied by meningitis, and its proper symptoms would then be masked.

4. *Meningitis.*—The symptoms of meningitis are chiefly in connection with the involvement of the cranial nerves. There may be headache and cerebral vomiting, but the most diagnostic symptoms are (1) squint from paralysis of one or more of the muscles of the eyeball and (2) optic neuritis. Mr. Lawford and I have paid some attention to the latter symptom, and have come to the conclusion that in all cases of optic neuritis of intracranial origin the affection of the optic nerves is due to an extension of inflammation to their sheaths from inflamed pia mater, and that therefore optic neuritis in these cases is diagnostic of basal meningitis, which, however, may be very slight.[1]

To ascertain the frequency of optic neuritis in these cases I have collected all those I could find in which the result of an examination of the eyes is recorded. They are twenty in number. In five there was no neuritis; in two there was neuritis of one eye only; in both cases of the eye of the same side as the diseased ear.[2] In the remaining thirteen cases there was double optic neuritis.

These twenty cases consisted of four cases of sinus thrombosis, five cases of meningitis, seven cases of temporo-sphenoidal abscess, and four cases of cerebellar abscess. Of the four cases of thrombosis three had, and one had not, neuritis. Of the five cases of meningitis four had double neuritis, and one single optic neuritis. Of the seven temporo-sphenoidal abscess three had double, one had single, and three had no optic neuritis. Of the four cases of cerebellar abscess three had, and one had not, neuritis.

[1] 'Ophthalmological Society's Transactions,' vols. iii, iv, v, and vii. See also Kipp, 'Archives of Otology,' vols. viii (1879) and xiii (1884).

[2] It is doubtful if neuritis of one eye only, due to disease of opposite side of brain, occurs. The same must be said of amblyopia.

These results may be expressed in a table thus:

	No optic neuritis.	Single optic neuritis.	Double optic neuritis.	Total.
Thrombosis	1	—	3	4
Meningitis	—	1	4	5
Temporo-sphenoidal abscess	3	1	3	7
Cerebellar abscess	1	—	3	4
Total	5	2	13	20

From the fact that in some of the cases of thrombosis, of temporal abscess, and of cerebellar abscess, optic neuritis was absent, it is fair to argue that it is not a symptom of these conditions, and that when present with them it is due to some complication; meningitis naturally suggests itself as that complication.

It must be remembered that well-marked optic neuritis may exist without any impairment of sight, and also that the changes in the disk are so slight as to be barely visible to the naked eye at a post-mortem examination; it is not therefore to be expected that the meningitis causing it should in all cases be very obvious, either during life by its symptoms, or after death by its pathological appearances.

It must be clearly understood that optic neuritis may occur in ear disease without any other symptoms of meningitis, and also that even when other symptoms are present the patient may recover without surgical interference.

5 and 6. *Abscess of temporo-sphenoidal lobe, and abscess of cerebellum.* There is reason to think that either of these conditions may exist for a long period without producing any symptoms. If, however, the abscess is increasing, there will be pain in the head, slow pulse, subnormal temperature, and in the later stages cerebral vomiting and torpor gradually deepening into coma; these symptoms are common to the two forms of abscess, but there are other symptoms which are of service in diagnosing between them.

The first convolution of the temporo-sphenoidal lobe is stated by some physiologists to be concerned in hearing by the opposite ear, but this is denied by others. A case is

recorded by Mills[1] in which a gumma and abscess in the left temporo-sphenoidal lobe produced deafness of the right ear.

The first temporal convolution, on the left side only, in man is associated with speech, and affection of it produces aphasia, especially that form known as "word-deafness."

In Truckenbrod's case[2] of abscess of the left temporal lobe there was a "high degree of aphasia," which was slowly recovered from after the abscess had been drained, but months later, although he could converse fluently, he was occasionally, while writing, at a loss for words and the names of things. Defect of speech and difficulty of reading was noticed in a case which was recently in St. Thomas's with abscess in the left temporal lobe.

In Greenfield's[3] case (also of abscess in the left temporal lobe) there was some difficulty of speech, which passed off after the abscess was drained.

The temporo-sphenoidal lobe is stated to be concerned in the sensation of the opposite side of the body, and in Mills's case of gumma of temporal lobe just referred to there was partial anæsthesia of the opposite side.

The temporo-sphenoidal lobe is not concerned in the sense of sight, but the communications between the eyes and the centre of vision in the occipital lobe pass close to it, and in Truckenbrod's case there was well-marked hemianopsia, the halves of the retinæ on the same side as the ear disease being affected.

In the same way there may be hemiplegia from extension to internal capsule.

With respect to cerebellar abscess, there are no symptoms due to affection of the lateral lobes of the cerebellum; disease here, however, may be suspected from pain in the occipital region, stiffness of the neck, and retraction of the head.

There is one interesting way of diagnosing between temporal and cerebellar abscess suggested by McBride.[4] He finds that when the labyrinth is diseased the abscess is more

[1] 'Archives of Medicine, vol. viii (1882), p. 64.

[2] 'Archives of Otology,' vol. xv (1886), p. 176.

[3] 'British Medical Journal,' vol. i (1887), p. 317.

[4] McBride, 'Edin. Med. Journal,' 1887, June, p. 996.

often in the cerebellum than the temporal lobe; consequently, if the conduction of sound by bone is impaired, it is probable that the abscess is in the cerebellum.

Lastly, we may get some help from simple probability: abscess in the temporal lobe is at least twice as common as in the cerebellum.

Occasionally both ears are diseased, and there may be nothing in the brain symptoms to show on which side the abscess is; in that case an examination of the ears may show on which side the disease is most active, indeed, it did so in the recent case at St. Thomas's; but of course the ears should be carefully examined in every case.





A NOTICE

OF THE MORE INTERESTING OF THE

ADDITIONS MADE TO THE MUSEUM DURING THE PRECEDING YEAR.

By SAMUEL G. SHATTOCK,
CURATOR OF THE MUSEUM.

Osteomalacia of the Right Humerus.

The specimen was obtained from a man æt. 86, admitted under Mr. Lunn into the St. Marylebone Infirmary with bronchitis. He was bedridden till his death, January 20th, 1887. He used always to rest on his right arm until three months before he died, when it was noticed that the arm was curving outwards, and was painful; after this he kept on his back and left side; the humerus, however, continued to bend.

There was no history of syphilis, gout, or rheumatism, of blow, or of fall.

The humerus is obtusely curved outwards about the middle of its shaft, which is here remarkably thicker than natural from callus-formation; the medullary canal is diminished in size opposite the curvature by a formation of internal callus.

The wall of the shaft as high as the head of the bone is rarefied. Longitudinal parings of the rarefied shaft examined without artificial decalcification and after staining in

picro-carmine show a bright red, transparent edge to the trabeculæ; the central part of the trabeculæ is unstained, and has the ordinary microscopical characters of bone that has not been decalcified.

Unfortunately none of the other bones of the patient were removed after death. It is not impossible that other of the bones were similarly diseased, the weakness of the humerus in particular being manifested by the patient's resting upon the elbow for support.

Symmetrical Loose Bodies in the Knee-joints.

The patient, æt. 33, came under observation for the usual symptoms of loose body of nine years' duration in the left knee. Two bodies were removed with antiseptic precautions, and the patient had subsequently no further trouble except that latterly he experienced some symptoms in his right knee. Death took place in April, 1886, of sarcoma in the cervical glands, spleen, intestine, peritoneum, and lungs. After death the end of the left femur was found "lipped" as in osteo-arthritis; a large patch of the cartilage on the outer condyle is fibrous; a rounded body, partly bone, partly cartilage, is loosely attached to the inter-condylar notch; close to this is a second body ($\frac{3}{4} \times \frac{1}{2} \times \frac{1}{4}$ inch) which lies in a deep hollow in the outer border of the inner condyle.

In the knee-joint of the right side are symmetrical changes. In addition there is at the posterior edge of the inner condyle a pouch in the synovial membrane in which lie two completely detached bodies.

There is a similar pouch in the left knee but it is empty; the bodies removed during life probably came from this spot.

Adenoid Vegetations from the Naso-pharyngeal cavity. (Two collections of specimens removed by Dr. Semon, by whom they were presented to the Museum.)

Case 1.—The vegetations in this case nearly filled the whole of the cavity, causing mouth-breathing, thickness of

voice, occasional deafness, and frequent catarrhal affections of the upper air passages. They were removed with Loewenberg's forceps. The patient, a girl æt. 14, is now quite well. She had previously suffered from great enlargement of the tonsils which were removed, with comparatively small benefit, two years previously.

Case 2.—From a boy, æt. 12. There was in this case more chronic deafness, and no enlargement of other glands. The patient completely recovered his hearing after the removal of the hypertrophic tissue.

Masons' lung.—Scattered through both lungs are numerous small pigmented nodules; at the surface of the lung they appear as small, circular, whitish spots surrounded with a ring of pigment. Microscopically these consist of fibrous tissue.

The specimens were from a man, æt. 60, who was a mason.

Carcinoma of the Thyroid from a case of Myxœdema.

The enlarged gland causes some constriction of the œsophagus. The lymphatic glands in the neighbourhood are extensively diseased.

From a woman, æt. 44, with all the characteristic features of myxœdema; the symptoms of the disease extended over a period of four years; the disease of the thyroid appears to have been of less duration.

In this case Dr. Gulliver remarks ('Path. Soc. Trans.,' vol. xxxvii) that an additional example is afforded of the election which carcinoma makes of atrophied organs. The association of malignant tumour of the thyroid and myxœdema is very rare, notwithstanding the fact that malignant disease is by no means rare in the thyroid, either in the form of carcinoma or sarcoma.

Doubtless (as Dr. Hadden insists) tumours of the thyroid do not destroy the whole of the gland tissue, and for this reason, myxœdema does not result. It has been shown that in removal of the thyroid for new growths, myxœdema does not ensue if any portion of the gland tissue be left. And in

experiments on animals, Horsley has shown that if only part of the thyroid be excised, death does not ensue, whilst the portion of thyroid left undergoes a compensatory hypertrophy.

Aneurysm of the Mitral Valve in a Child.

From the posterior segment of the mitral valve there projects an aneurismal sac about half an inch in diameter. The child was only two years of age; the father was a sailor, and was said to be quite healthy, the mother had had seven children, five of whom were alive, whilst the other two were dead of phthisis.

On January 7th, 1887, the child became feverish and began to cough; on January 9th she became suddenly worse and died. After death extensive broncho-pneumonia was found, but no change in other organs than the heart. The aneurism above noticed was perforated near the centre, the edges of the perforation being fringed with vegetations.

The association of pneumonia with the acute endocarditis evidenced by the perforation, &c., of the aneurism is interesting in relation to Osler's view that the infection in many of these cases occurs primarily through the lung, the endocarditis being secondary. It has been shown by Charlewood Turner that in some cases of pyæmia, acute infective aortitis may occur at the seats of old areas of atheroma, which under the general infective process offer spots of less resistance. These facts correspond with the results of experimentally injuring the cardiac valves after infecting the blood by injection of the coccus pyogenes aureus.

In the specimen under notice, acute endocarditis appears to have supervened upon pneumonia, the point of election being the less resistant tissue of an older aneurismal sac of the mitral valve.

Aneurysm of the ascending portion of the Aortic Arch communicating with the Superior Cava.

The aperture of communication is about the size of a goosequill. The left innominate vein is thrombosed.

The communication was diagnosed during life by Dr. Bristowe in consequence of the peculiar bruit, and the fulness of the veins of the right side of the neck, which also exhibited an indistinct pulsation.

Horny Papilloma of the Hand.

The growth extends from the outer side of the thumb to within an inch of the inner border of the hand, and from an inch above the knuckles down the whole of the back of the thumb and index finger, and partly down the middle and ring fingers. The horn is about an inch thick on the back of the index finger.

Microscopic examination shows no invasion of the substance of the corium, or any signs marking malignancy, and with this the clinical history corresponds.

The growth was noticed five years ago, when the patient was sixty-eight years of age. When three years old she was severely burnt on the hand, and on the scar resulting the horny outgrowth appeared. The hand was amputated, and the woman was well twelve months after the operation.

Multiple Neuro-fibromata in connection with Molluscum Fibrosum.

The patient's body was almost covered with small, soft fibromata, varying in size from a pin's head to that of a hazel nut.

Fibromata developed in connection with the brachial plexus of the left side, leading to neuralgia down the arm, but to no paralysis. The woman died on September 5th, 1886, after two days' violent diarrhœa and sickness.

Microscopic examination showed the fibromata of the skin to have their origin in the corium, and to have no special connection with the cutaneous nerves.

Included Fœtus.

The specimen was found lying in front of the first and second lumbar vertebræ of a child, æt. 11 months, who died of diphtheria.

It is about the size of a duck's egg, and is constituted by a vertebral column and basis cranii; there are four misshapen limbs, and a single empty cavity in the mass of fat of which the trunk is composed.

The exterior is formed of skin, and the whole was thickly invested with vernix caseosa.





REPORT

OF THE

DEPARTMENT FOR DISEASES OF THE SKIN, 1885 AND 1886.

By J. F. PAYNE, M.D., F.R.C.P.

The number of new cases admitted in the year 1885 of which records have been preserved suitable for tabulation was 734. The corresponding number in 1886 was 719. Analyses of the statistics for both years are exhibited in the following tables:—

Analysis of Cases of Skin Disease in 1885.

Disease.	M.	F.	Total.
Eczema	96	111	207
Impetigo contagiosa	22	39	61
Erythema	8	8	16
Seborrhœa	0	1	1
Psoriasis	17	44	61
Pemphigus	1	2	3
Cheiropompholyx	1	0	1
Hydroa gestationis	0	2	2
Lichen planus	0	5	5
„ scrofulosus	0	1	1
„ circumscriptus	3	3	6
Herpes zoster	5	6	11
„ iris	0	1	1
Urticaria	6	6	12
Pruriginous affections	7	4	11
Syphiloderma (acquired)	14	29	43
Congenital syphilis	2	4	6
Pediculi capitis	6	8	14
„ vestimentorum	10	2	12
Scabies	17	22	39
Tinea tonsurans	78	56	134
„ circinata	3	0	3
„ versicolor	1	0	1
„ sycosis	2	0	2
Sycosis simplex	4	0	4
Alopecia	13	22	35
Leucodermia	2	0	2

Disease.	M.	F.	Total.
Acne	8	8	16
Comedones	1	1	2
Lupus vulgaris	1	1	2
„ erythematosus	0	3	3
Ichthyosis (or Xeroderma)	1	0	1
Purpura	2	2	4
Verruca	0	1	1
Varicella	1	1	2
„ gangrænosa	0	1	1
Boils	0	2	2
Ecthyma	0	1	1
Pigmentation of skin	1	0	1
Keratosis pilaris	1	1	2
Onychia	0	3	3
Rodent ulcer	0	1	1
Congenital papilloma	0	1	1
	334	403	
Grand total			737

Analysis of Cases of Skin Disease in 1886.

Disease.	M.	F.	Total.
Eczema	94	110	204
Impetigo contagiosa	27	27	54
Erythema	5	9	14
Psoriasis	14	43	57
Pemphigus	0	1	1
Hydroa	2	1	3
„ gestationis	0	1	1
Lichen planus	1	4	5
„ circumscriptus	4	2	6
Herpes zoster	3	0	3
„ iris	0	1	1
Urticaria	4	1	5
„ pigmentosa	0	1	1
Pruriginous affections	20	9	29
Syphiloderma (acquired)	20	32	52
Congenital syphilis	3	4	7
Pediculi capitis	3	9	12
„ vestimentorum	2	0	2
Scabies	17	16	33
Tinea tonsurans	57	64	121
„ circinata	4	1	5
„ unguium	0	1	1
„ versicolor	4	1	5
„ sycosis	3	0	3
Alopecia	13	13	26
Acne rosacea	3	15	18
„ vulgaris	5	5	10
Comedones	1	1	2
Lupus vulgaris	0	4	4
„ erythematosus	0	5	5
Scrofuloderma	1	0	1
Ichthyosis (or Xeroderma)	1	1	2
Purpura	3	0	3
Molluscum fibrosum	0	1	1
„ contagiosum	1	0	1
Verruca	2	0	2
Varicella	1	0	1
Boils	3	1	4
Ecthyma	2	3	5
Keratosis pilaris	0	1	1
Trigeminal neurosis	1	0	1
Hyperhidrosis	1	1	2
Erysipelas	0	1	1
Pityriasis rosea	2	0	2
Mycosis axillaris	0	1	1
Erythrasma	1	0	1
	328	391	
Grand total			719

It will perhaps be best to take the statistics of the two years together, in adding such notes as may be desirable.

Eczema.

Of the 411 cases in two years, 190 were male and 221 female patients. Out of these numbers, 108 were children of seven years of age or less, namely, 61 boys and 47 girls. It will thus appear that of 303 patients over seven years of age, there were 129 males and 174 females; giving a large excess of the weaker sex, though in childhood the reverse proportion obtains. Expressed in percentages the results are :—

	Males.		Females.		
Whole number . . .	46·2	...	53·8	=	100·0
Over seven . . .	42·6	...	57·4	=	100·0
Under seven . . .	56·5	...	43·5	=	100·0

Inquiry was made as before into the connection of eczema with gout. There were four patients (two men and two women) who had actually suffered from gout. In three more cases there was a history of gout in a parent or near relative. One of the men who had gout was also affected with lead-poisoning. Rheumatism appeared to be an equally common accompaniment, since eight patients (three men and five women) stated that they had had acute rheumatism. No other diathetic disease was traced in connection with eczema.

Congenital Traumatic Pemphigus.

Under this head comes a peculiar case like two others previously described in these 'Reports' (vol. xii, p. 187; xiv, p. 225) of a congenital bullous affection, which, though we may provisionally call it pemphigus, differs in important characters from that disease.

William M—, æt. 3, admitted January 28th, 1885, a poorly-nourished child, reported to have had good health. Nothing noteworthy in family history as regards the disease. Parents in good health. One sister, four years old, has paralysis of one side, which came on in infancy. No history pointing to syphilis. It is said that he has been subject since his birth to an eruption on the face, hands, and else-

where. The spots first come as blisters, which often bleed. They are brought out by any kind of blow or injury. For instance, if the child falls and knocks his knees, blisters, into which there is bleeding, result. Sometimes the blisters are quite pale, but they may also suppurate. At present, the child has suppurative crusted patches on both knees and both elbows, and one on the left cheek. Where the crusts have fallen off there is a reddish superficial scar. There is a suppurating gland in the left groin, which has been noticed only three days. But for the history, the sores might have been regarded as some form of impetigo or erythema. Another character was, however, present, which positively established the diagnosis, namely, the condition of the nails on the fingers and toes. Several of them were deformed, incurved, thickened, and ribbed in the same way as those of the boy whose case was reported in vol. xii of these 'Reports' (for 1882), and whose nails are figured in Plate I of that volume.

On the right hand, the thumb and forefinger had small, incurved nails; the others were natural. On the left hand, the thumb-nail was thickened and deformed, two of the finger-nails longitudinally ribbed. On the right foot, the nail of the great toe was deformed and thickened, that of the second toe abnormally small, that of the fifth entirely wanting. On the left foot the first and third toes had small and deformed nails; the others were normal.

When the patient attended next week, the abscess, which was matured, was opened. The suppurating patches on the limbs were much better, but there was one fresh bleb on the left forefinger, into which was some hæmorrhage. Further improvement, and the child soon ceased to attend, without, however, being cured.

This makes the third case of this kind which I have described. Two others, as I mentioned in a former volume of these 'Reports,' were described simultaneously with the publication of my first case, by Dr. Wickham Legg in 'St. Bartholomew's Hospital Reports,' (vol. xix), and appear to have resembled my three cases in every respect.

I am not acquainted with any recorded cases other than these five. I have, however, met with an account of one

instance of an affection which appears to me similar, though called by a different name, namely, "hereditary tendency to formation of bullæ." Under this title Goldscheider has described ('Monatshefte für Praktische Dermatologie,' vol. i, p. 163, 1882) the case of a young soldier who after every march had his feet covered with blisters, sometimes thirty or more, so that he had to be discharged from the service. It was found that similar blisters were produced in any part of the skin by slight friction. If the skin was rubbed with the finger only moderately firmly for two or three minutes, a blister formed on the spot after a few hours. In some places, by more energetic friction, a piece of epidermis could be easily detached, and then obstinate suppuration followed, instead of an ordinary blister. Simple pressure had no effect, nor had the application of chemical irritants, such as acetic acid or iodine. A portion of skin was removed for examination and found to be perfectly normal. The condition was therefore one merely of abnormal vulnerability of the skin.

A very remarkable fact about Goldscheider's case was that the condition was hereditary, and seen in several members of the family. The patient's father and maternal grandmother, as well as the grandmother's brother, had suffered in the same way, and the last-mentioned individual was discharged from military service on that ground. The patient's brother and sister had the same affection, and two of the sister's children also. Now, the two cases of the affection here spoken of, which were described by Dr. Wickham Legg, were of the same family, though no hereditary predisposition was traceable in my case.

Taking into account the analogy of Goldscheider's case, it might seem that the condition in the five cases I have referred to, might more fitly be described as abnormal vulnerability of the skin, and not as a special disease, pemphigus. In fact I formerly proposed to call it a "traumatic bullous affection resembling pemphigus" rather than true pemphigus. But considering the inconvenience of changing established names, and considering that I have never been able absolutely to prove that the bullæ in these cases, though produced by a traumatic cause, never arise *without* such a cause, perhaps it is better to allow the name pemphigus to

remain, only distinguishing this variety as "congenital traumatic pemphigus."

Dr. Brooke, of Manchester, in a notice of my report for 1884 in the 'Monatshefte für Dermatologie' (July 15th, 1887) states that he has seen one similar case.[1]

Comedones of Forehead and Scalp.

In the 'Reports' for 1884, I noticed some cases of this curious affection, which differs very much from ordinary acne. It consists in a copious production of sebaceous plugs or comedones on the forehead and partly over the hairy scalp, sometimes inflamed and suppurating, and rarely leaving a small pitted scar. It differs from acne punctata or acne sebacea in not showing itself in the common situation on the nose, cheeks, or shoulders, and has no connection with the development of puberty or any other evolutionary process. Of the four cases recorded in the years 1885 and 1886, two were in young children, one in a girl of sixteen, another a woman of fifty-eight, all otherwise in good health. I have seen some other cases at the Hospital for Diseases of the Skin, all children.

It still remains quite unexplained why this disease should have been observed only within the last few years. The case recorded in these 'Reports' as having occurred in February, 1884, was soon after shown to the Dermatological Society, and was among the first exhibited there, though as other members brought similar cases about the same time, I do not claim for it any absolute priority. But as it was generally admitted to be a new, or recently observed disease, we must place its first occurrence, or first attracting attention in the early part of 1884 or perhaps in 1883. Till lately I thought that this affection had been seen only in London. However, Dr. Brooke, of Manchester, in reporting on my cases to the 'Monatshefte für Dermatologie' (July 15th, 1887) mentions that he has seen one case in Manchester.

[1] Professor Koebner, of Berlin, has described, under the name of *Epidermolysis bullosa hereditaria*, a condition identical with that in Goldscheider's case, and perhaps with that here described. ('Deutsche medicin. Wochenschrift,' 1886, o. 2.)

Pityriasis Rosea.

This disease is by no means new, though it has lately attracted a good deal of attention; and it is very likely that cases of it have been previously overlooked, or else confounded with some other superficial scaly affection of the skin, such as slight psoriasis or lichen circumscriptus. The name here applied to it I do not defend as the most suitable, but I think the names of skin diseases are comparatively unimportant provided they are not pressed to their strict etymological significance. Several other names have been given; Dr. Liveing, in the last edition of his handbook, calls it roseola circinata. The name roseola furfuracea herpetiformis has been suggested by Dr. Behrend, of Berlin.

The name roseola is so far justified that in one or two cases in which I saw the disease at the very commencement, it presented the appearance of small but uniform bright red patches, looking at first sight like exaggerated flea-bites, though the colour depended on hyperæmia, not on ecchymosis. These patches became covered with scales, and then showed the characters of the stage in which we more commonly see the disease. In this stage there are scaly patches of variable size, from that of a large pin's head to three quarters of an inch in diameter. Whether the patches, once formed, increase in size, I do not feel quite certain. The appearance in this, the complete or typical form of the eruption, is that of a local pityriasis or very slight psoriasis. Being sometimes ringed, it has a striking and often deceptive resemblance to tinea circinata or ringworm of the body, but it is distinguished by the negative result of the microscopical examination of the scales. No mould fungus or anything resembling the Trichophyton of tinea is, in my experience, or, I believe, in that of any other observer, ever to be found in them. I have often found micrococci, and also occasionally some cells of a yeast-fungus (Torula or Saccharomyces), but these are so often found as casual inhabitants of epidermic scales that no importance can be attached to them. At the same time, considering the evidently specific character of this disease, its typical course

and its peculiar distribution, evidently quite independent of external irritation, or inflammation in the ordinary sense, there is a very strong presumption that some parasitic micro-organism must be its cause. But such a micro-organism might either reach the surface from inside, being distributed by the blood, or from outside, being conveyed to the skin by the air; and there is no evidence to show which of these modes of conveyance is that which actually occurs. On the whole, though, it seems most probable that the eruption is like the rash of an exanthematic fever, and that the affection is really a specific eruptive disease in which the febrile reaction is very slight or imperceptible. The chief objection to this view is that no contagion has, so far as I know, ever been recorded in it, though I have seen one case in which a mother and baby were successively affected.

The course of the disease also supplies further evidence in favour of the hypothesis that it is one depending upon a specific internal cause. The eruption lasts a variable time, sometimes a month or even six weeks, but it never becomes really chronic, and the prediction that it will subside spontaneously is a safe one. When it seems obstinate, we naturally try various local remedies, but, so far as my experience goes, without any benefit. In some of the earlier cases which I saw, not being prepared for the spontaneous decline, I tried various ointments, mercurial and others, such as we find useful in lichen circumscriptus (seborrhœa corporis, Liveing), and at length the eruption disappeared; but, as I now think, from its own natural evolution, not in consequence of the remedies used. The prognosis, therefore, is always good, and this fact it is which makes the recognition of the disease of some practical importance, since it is easy to mistake it for a more serious disorder. But in protracted cases the obstinacy of the eruption and its power of resisting the effects of remedies make it a troublesome and annoying though essentially trivial complaint.

There are two somewhat novel terms used in the 'Report' for 1886 which should be explained, viz. *Erythrasma* and *Mycosis axillaris*.

Erythrasma.

This name is applied to reddish brown scaly patches found on the inner surface of the thigh where the scrotum is in contact with it; and on the corresponding surface of the scrotum. A similar condition may occur in the groin, and is probably, though not certainly, due to the same cause. The affection then appears to be something allied to what is generally called intertrigo, and might at first sight appear to be merely a mild kind of eczema or simple inflammation, of the skin. But there are good reasons against identifying it with eczema intertrigo. In the first place, inflammation even in a slight degree, though such may occur, is no necessary part of the affection. In the next place, the constant presence of one or more forms of parisitic fungi or bacteria is a notable feature of the condition, and probably its cause. I have discussed these questions in describing a case in the 'Transactions of the Pathological Society' (vol. xxxvii, p. 516), and only now add some results derived from an examination of five other cases, which have come under my observation since.

Fungi and micro-organisms.—More than one form of parasitic, or so-called "epiphytic" vegetable organism is always present.

(1) In every case I have found some cells of a species of Torula or Saccharomyces. These organisms are often found in scaly conditions of the skin, and therefore it is doubtful how far they can be regarded as the cause of any pathological condition, but there is reason to think that they cause or at least accelerate desquamation. The form found in the condition now described much resembles that commonly found in a scaly condition or pityriasis of the scalp, and called *Saccharomyces capillitii*, but is somewhat larger. It consists of oval cells, often connected, and appearing as if budding one out of another, precisely in the manner of the ordinary yeast-fungus. This is nearly constant; being found certainly in five cases out of six.

(2) The peculiar threads, somewhat resembling the mycelium of a small mould-fungus, which are figured in the above-

mentioned paper in the 'Pathological Transactions.' This form has received the name of *Microsporon minutissimum*, though I have never seen any trace of spores belonging to it. It was originally described by Burchardt as the fungus causing the disease. About the botanical nature of this organism I was and am uncertain, but now think that it has a greater resemblance to the figures of "involution forms" of bacilli, such as the cholera bacillus, as given by Ermengem and others, than to anything else. The supposition that it is a degenerated or "involutionary" form of some micro-organism is strengthened by the results I have obtained on staining the threads by Gram's method. The coloured or colourable material, which may be considered as representing the living protoplasm of the organism, is then found to be distributed in a most irregular manner, sometimes at the ends, sometimes at the sides of the threads, so as to suggest that the organism is in a dying or degenerating condition. At the same time its great abundance shows that there must have been a luxuriant growth of it among the epidermic scales. On another opportunity, I hope to publish figures of this curious appearance.

(3) In one case only I have observed larger threads of mycelium resembling that of a mould-fungus like Trichophyton, but so scanty in number as to be apparently of no importance.

(4) There are often numerous micrococci, but these are not distinctive. They may probably have been the so-called spores of Microsporon described by some observers. Distinct, normal, healthy-looking bacilli I have not observed.

The conclusion I think is that though these appearances hardly constitute a disease, the brown and scaly condition of the skin is due to the growth of parasitic organisms or epiphytes, which find a suitable nidus in the warm and moist skin of the part in question.

Mycosis axillaris.

I give this name, for want of a better, to a growth of bacteria in the form of a zoogloœa around the axillary hairs.

This condition must have been often observed, though it has only lately been carefully described. The zooglœa forms small round masses or lumps on the shafts of the hairs just visible to the naked eye.

When examined with a high power of the microscope, these lumps are found to be masses of a zooglœa form of bacterium wrapping round the shaft of the hair, and extending outwards from it.

The organism contained in the zooglœa I should describe as an oval micrococcus, but it might perhaps be regarded as a short form of bacillus. A growth of this kind has often been observed in the axillary hairs, and is said to occur somewhat frequently in healthy persons. This statement I am not in a position either to deny or very decidedly to confirm, since one does not often have occasion to examine a healthy axilla very closely; though I have failed to find them when I have looked. But in two cases I have found this bacterial growth not only present surrounding the hairs, but causing them to break off so that there is a real disease of the hairs. The case mentioned in this report was one of them.

Florence S—, æt. 17, a tall, well-made girl, of robust appearance, though said to be not in strong health, applied October 16th, 1886, with a scaly patch in the left axilla. The affected part was about 2 by $2\frac{1}{2}$ inches, brown, dry, scaly, slightly sore, but not giving rise to irritation. On examination, several broken hairs were seen. There was no exudation, or anything that could be called eczema. The axilla was not moist, and there was said to be generally very little perspiration. The patient wore no flannel next the skin. There was no other eruption on any other part of the body, and the right axilla appeared perfectly normal. The affection had been noticed three or four weeks, and the patient believed she had suffered from the same some years before.

On examining the affected hairs microscopically, small lumps or swellings were seen adhering to them at the point were they were broken, and these lumps, under a high power, resolved themselves into masses of transparent zooglœa containing micrococci or oval bacteria. In some specimens

these masses were found wrapping round the hair-shaft, without any further alteration; but in others they penetrated the hair at the point of fracture, and thus appeared to be the cause of its breaking off. Similar masses were found abundantly on some of the epidermic scales obtained by scraping the skin of the axilla. The cocci stained easily with aniline dyes, especially with methyl violet, and methylene blue.

There could not be the least doubt of the reality of these micro-organisms, nor of their occurrence in great abundance, but the question would natually be raised whether they might not be accidentally present, and have nothing to do with the morbid appearances, slight as these were, of the hairs and skin.

In the first place, it seemed well to examine the *right* axilla—and here I found no trace of the micro-organisms, either on the hairs or epidermis; while, as has been said, the appearances were also quite normal.

In the next place, I examined scrapings and hairs from the axilla in other persons, and could not find any similar masses on the hairs, or similar micro-organisms in the scales; though occasionally, as is often the case in healthy skin, some scattered micrococci were observed.

Among the cases examined was one of fœtid perspiration from the axilla, where, notwithstanding the moisture, micro-organisms were notably absent. This case had been already, I should say, treated with antiseptic applications, but without any diminution of the fœtor.

Looking at these facts, it seems to me reasonable to suppose that the brown colour and desquamation of the epidermis, for which I could find no other cause, were produced by a colony of micro-organisms, which had made a settlement in the axilla, and found a suitable soil in the warm, moist situation. With regard to the breaking off of the hairs, it is perhaps not quite so clear that this was caused by the zoogloœa, because similar bacterial masses have been described by several authors as adherent to axillary hairs without the hairs being broken. Babes has described a red micrococcus from this situation,[1] which was associated with red sweat staining the clothes. Except in colour the micro-

[1] Cornil et Babes, 'Les Bactéries,' 1885, pp. 104, 559, plate xix.

coccus would seem to have precisely resembled that which I am describing, and Babes' figures represent exactly what I have seen. The importance of the red colour is not yet clear, but according to Babes it belonged also to the micrococcus when cultivated, so that it would seem to be a specific distinction.

Similar nodules on the axillary hairs, without any special colour, but composed of zoogloœa masses of micrococci, have also been described by some German pathologists, *e. g.* by Waldeyer, Behrend, and others. For their observations I refer to an article in Virchow's 'Archiv,' vol. 103. It appears that in one case only was any breaking of the hairs observed.

I am, however, disposed to regard the zoogloœa as the cause of the hair breaking off, because the same appearances were still more distinctly seen in one other case which came under my notice. It was that of a young girl, who came to the Hospital for Skin Diseases, Blackfriars, in 1885, and showed the same affection with numerous broken hairs in both axillæ. The bacterial masses and their connection with the fracture of hairs were very distinct, and resembled those in the present case.

It must be admitted that there is still a great deal to be learnt about epidermic vegetable parasites, and that the "Cryptogamic Flora," if one may call it so, of the human skin, is still very imperfectly known.



REPORT OF

THE OBSTETRICAL DEPARTMENT

FOR 1886.

By ROBERT CORY, M.A., M.D., F.R.C.P.

The Resident Accoucheurs for the year were Messrs. Lankester, Brockatt, Hutton, and Yeoman.

From the 1st of January, 1886, to the 31st of December, 1886 (both dates inclusive), 1936 were attended. Of these, 1912 resulted in single births, and 24 in twin births. There were 11 cases of abortion among the single births.

In the following table the presentations of the children are classified:

	Among the single births.	Among the twin births.	Total.
Vertex	1842	42	1884
Breech	27	2	29
Superior extremities, including the shoulder	6	—	6
Head and arm	3	—	3
Inferior extremities . . .	4	4	8
Mixed, in which both inferior and superior extremities presented	1	1	2
Face	1	—	1
Abortions and premature births .	27	—	27
	1911	49	1960

Of the 1936 cases attended,

300	were	1st	confinements.	53	were	10th	confinements.
302	„	2nd	„	27	„	11th	„
290	„	3rd	„	18	„	12th	„
216	„	4th	„	6	„	13th	„
205	„	5th	„	5	„	14th	„
190	„	6th	„	3	„	15th	„
150	„	7th	„	1	„	16th	„
100	„	8th	„	1	„	17th	„
69	„	9th	„	1936			

The following table shows the number of women confined at each consecutive year of life; the youngest mother being 16, and the oldest 47 years of age:

At the age of	No. of women confined.	At the age of	No. of women confined
16	1	33	67
17	4	34	79
18	20	35	76
19	45	36	58
20	93	37	36
21	93	38	39
22	101	39	43
23	147	40	29
24	122	41	19
25	122	42	22
26	121	43	10
27	99	44	8
28	104	45	6
29	91	46	3
30	113	47	1
31	74		
32	90	Total	1936

The FORCEPS were used in 47 cases. The reasons given for their use may be tabulated as follows:

Delay at brim or during 1st stage of labour	14	7 contracted pelves. 2 after coming heads. 1 face. 2 placenta prævia. 2 not stated.
Delay at outlet or 2nd stage of labour	32	12 tedious primipara. 18 inertia. 1 occipito-posterior. 1 not stated.
For breech presentation	1	

There were 17 cases of primiparæ among the 47 forceps cases. This gives a percentage of 36·1; the general percentage of primiparæ being 15·4 to all cases. Rupture of the perineum is reported to have taken place in 1, laceration of the cervix in 2, among the 47 cases.

In 5 of the forceps cases the children were stillborn, but only 3 of these were uncomplicated cases.

Placenta prævia.

Five cases of placenta prævia are reported as having occurred during the year.

No.	Age.	Confinement.	Sex of child.	Result to Child.	Treatment.	Result to Mother.
341	20	1st	F.	Living	Separation of placenta and forceps	Recovered.
544	47	10th	M.	Stillborn	Separation of placenta and version	„
524	36	6th	M.	„	Not stated.	„
813	19	1st	M.	Living	Separation of placenta and forceps	„
1849	32	7th	M.	Stillborn	Separation of placenta and version	„

The lesson to be learned in these cases is well shown, viz. never attempt version if the head is presenting and hæmorrhage has been stopped by the partial separation of the placenta.

The breech presented in 27 cases among the single births, which gives a proportion of 1 in every 71·7 births. In 8 of these cases the children were stillborn, which is equivalent to a death-rate of 29·6 among the infants.

Five cases of maternal deaths occurred during the year. The following table gives particulars :

No.	Age.	Confinement.	Sex of child.	Result to child.	Interval between death of mother and birth of child.	Causes.
1242	22	1st	F.	Living	11 days	Septicæmia.
1253	24	1st	M.	Stillborn	40 hours	Peritonitis; cephalotripsy.
1615	26	2nd	F.	Living	13 days	Septicæmia; retained placenta.
1919	27	9th	M.	„	15 minutes	Hæmorrhage.
2258	26	1st	M.	Stillborn	50 hours	Sudden death.

This only gives a death-rate of ·25 per cent. There were 2 maternal deaths during the year 1885 not recorded in the report for that year, which brings the total number up to 4, and during this year 2004 women were attended. The death-rate in 1885 was ·2 per cent. nearly.

Of the Children.—The number of children born among the 1936 women attended during the year was 1960; there being 24 cases of twin births. Of these, 1035 were males, and 925 were females.

There were 90 stillbirths, or 1 in 21·5 labours, *i. e.* 4·1 per cent.

The characters of the labours in which the stillbirths occurred are given below :

Natural labours, including cases of intra-uterine maceration	41
Abortions	11
Premature	6
Breech	8
Craniotomy	5
Version	4
Twins	6
Funis	3
Forceps	3
Footlings	2
Placenta prævia	1
	90

The following table gives particulars of the cases of multiple births :

No.	Age of mother.	No. of confinement.	Date of birth.	Sex.		Result to mother.	Result to children.		Presentations.		Condition of placenta.
				1st.	2nd.		1st.	2nd.	1st.	2nd.	
2071	23	1	Feb. 6	F.	F.	L.	L.	L.	Head	Head	N. S.
101	41	7	Jan. 9	M.	F.	L.	L.	S.	„	„	„
435	38	7	Feb. 9	M.	F.	L.	L.	L.	„	„	„
451	35	6	Feb. 11	M.	M.	L.	L.	L.	„	„	„
488	36	7	March 5	M.	F.	L.	S.	S.	„	„	Separate
582	36	8	May 28	M.	M.	L.	L.	L.	„	„	N. S.
721	28	3	May 24	F.	M.	L.	L.	L.	„	„	„
428	27	4	April 16	M.	F.	L.	L.	L.	„	„	„
704	28	5	June 13	M.	M.	L.	L.	L.	„	Footling	„
809	39	9	May 7	F.	F.	L.	L.	L.	„	Head	„
939	42	10	July 14	F.	F.	L.	L.	L.	Breech	„	„
990	23	1	Aug. 11	M.	M.	L.	L.	L.	Head	Breech	„
1036	36	5	June 29	F.	F.	L.	L.	S.	„	Head	Single
1093	31	5	July 18	M.	F.	L.	S.	L.	„	Footling	Separate
1153	41	7	Sept. 21	F.	F.	L.	L.	S.	„	Head	„
1158	35	8	Aug. 24	M.	F.	L.	L.	L.	„	„	„
1346	29	4	Oct. 28	F.	F.	L.	L.	L.	„	Footling	Single
1412	38	8	Sept. 11	M.	F.	L.	L.	S.	„	Head	Separate
1439	29	3	Oct. 14	M.	F.	L.	L.	L.	„	„	N. S.
1469	24	1	Nov. 20	F.	F.	L.	L.	L.	„	„	„
1557	40	8	Oct. 5	M.	M.	L.	L.	L.	„	„	Single
1666	31	3	Oct. 31	M.	F.	L.	L.	L.	Footling	„	Separate
1713	20	2	Dec. 23	M.	M.	L.	L.	L.	Head	„	„
2160	24	3	Nov. 30	F.	F.	L.	L.	L.	„	„	N. S.

In above Table N. S. signifies not stated, L. signifies living, and S. stillborn.

In 8 cases the sexes are both female.

In 6 cases the sexes are both male.

In 10 cases the sexes are male and female.




MEDICAL AND SURGICAL REPORTS.




MEDICAL REPORT.

1886.

By WALTER BAUGH HADDEN, M.D.Lond., M.R.C.P.,
MEDICAL REGISTRAR.

Table I.—*General Statement of Medical and Surgical Patients*

	Males.	Females.	Total.
Number of patients in Hospital, Jan. 1st, 1886	190	180	370
" " " Dec. 31st, 1886	226	166	392

" " discharged or died during 1886:

	Males.	Females.	Total.	Rate per cent
Cured	1481	1089	2570	57·64
Relieved	519	531	1050	23·55
Unrelieved or other causes	172	163	335	7·51
Died	310	193	503	11·28
	2482	1976	4458	100·

Average number of days of each medical patient's stay in hospital—27·42.
" " surgical " 30·7.

Table II.—*General Medical Statement.*

Number of Medical Beds ... 192

	Males.	Females.	Total.
Number of patients in Medical Wards, Jan. 1st, 1886	65	93	158
" " admitted during the year 1886	1009	1028	2037
Total	1074	1121	2195
" " in Medical Wards, Dec. 31st, 1886	92	82	174
" " treated to a termination during 1886	982	1039	2021

" " discharged or died during 1886:

	Males.	Females.	Total.	Rate per cent.
Cured	489	523	1012	50·07
Relieved	201	267	468	23·15
Unrelieved or other causes	85	112	197	9·74
Died	207	137	344	17·02
Total	982	1039	2021	100·

Average number of days of each patient's stay in hospital—27·42.

Table III.—*General Table of Diseases.*

DISEASE.	Number of cases.			Age.								Duration of residence.									Cured.		Relieved.		Unrelieved.		Died.		REMARKS.
	Total.	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Under 1 week	Wks. 1–2	Wks. 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above 1 year	M.	F.	M.	F.	M.	F.	M.	F.	
I. General Diseases.																													
Rötheln	4	3	1	1	...	1	2	...	...	...	...	...	3	1	...	...	...	...	...	...	3	1	...	...	...	...	...	...	1 contracted in hospital; 1 doubtful.
Measles	21	12	9	15	1	2	2	1	...	...	...	3	6	4	7	1	...	...	...	...	10	8	...	...	...	...	2	1	12 arose in hospital, 1 being a nurse. Diphtheria in 1 fatal case.
Variola	1	...	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	A nurse, contracted in hospital.
Varicella	2	2	...	2	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	Pulmonary collapse in fatal case.
Scarlet fever	23	13	10	4	7	4	4	3	1	...	...	4	...	3	12	3	1	...	...	...	11	8	...	...	1	2	1	...	5 arose in hospital, 2 being "sisters," and 1 a house-surgeon. No P.M. in fatal case.
Typhus fever	1	1	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	
Enteric fever	77	52	25	4	4	30	28	5	4	2	...	4	3	12	29	28	1	...	...	...	43	20	...	...	...	...	9	5	3 arose in hospital, 2 being nurses.
Febricula	39	23	16	5	5	16	9	1	2	1	...	7	20	11	...	1	...	...	...	...	22	16	1	...	...	...	...	...	2 nurses, 1 a house surgeon.
Erysipelas	35	14	21	2	1	6	7	7	6	3	3	3	10	19	3	...	...	...	...	...	14	20	...	...	...	...	...	1	1 a nurse from the Home; 1 readmission.
Pyæmia	4	3	1	...	...	1	3	...	...	...	...	3	...	...	1	...	...	...	...	...	...	...	...	...	...	...	3	1	
Diphtheria	94	51	43	71	15	6	2	...	...	...	...	43	21	16	13	...	...	1	...	...	24	20	...	...	1	...	26	23	3 were cases of "croup." Tracheotomy in 45, of whom 37 died.
Post-diphtheritic paralysis	2	1	1	...	1	1	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	1	...	...	...	...	1	...	
Noma	1	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	Cause doubtful.
Pertussis	2	1	1	1	1	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	1	...	...	...	...	1	...	...	
Syphilis	2	...	2	...	...	...	1	1	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	2	...	...	...	...	Condylomata in 1; enlarged glands in 1.

Intermittent fever	7	7	...	...	...	...	5	2	...	...	...	3	2	1	1	...	...	...	...	...	...	...	7	...	...	...	...	...	1 readmission; 1 doubtful, 2 tertian, 1 quotidian, 1 irregular, 1 jungle fever.
Hydrophobia	1	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	
Acute rheumatism	129	75	54	...	4	49	54	16	2	2	2	5	38	53	30	3	...	...	...	...	71	51	2	1	1	...	1	2	1 transferred from surgical side; 2 readmissions. No P.M. in 1.
Subacute rheumatism	25	8	17	...	3	11	5	5	...	...	1	3	14	8	...	...	...	...	...	...	8	16	...	...	...	1	...	...	1 readmission.
Chronic articular rheumatism	9	2	7	...	...	1	1	2	1	4	...	...	1	1	4	2	1	...	...	...	...	...	2	5	...	1	...	1	Pericarditis in fatal case.
Muscular rheumatism	4	2	2	...	...	1	...	2	1	...	...	...	2	2	...	...	...	...	...	...	2	2	...	...	...	...	...	...	3 pleurodynia; 1 lumbago.
Rheumatic pains	15	6	9	...	1	1	8	1	4	...	...	4	4	5	2	...	...	...	...	...	6	8	...	...	...	1	...	...	2 readmissions. Syphilis in 2; mitral disease in 2.
Gonorrhœal rheumatism	1	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	From surgical side. Left knee affected.
Synovitis	2	...	2	...	...	2	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	1	...	1	...	...	...	...	Readmission.
Gout	8	7	1	...	...	...	...	...	5	2	1	...	...	5	2	1	...	...	...	...	3	1	4	...	...	...	...	...	Cases "cured" were admitted for acute attacks.
Myxœdema	3	...	3	...	...	...	...	1	1	1	...	...	...	...	1	1	1	...	...	...	...	...	...	2	...	1	...	...	Tonic contractions in 1; delusions in 1.
Diabetes mellitus	11	7	4	...	...	...	4	4	1	1	1	2	...	3	4	2	...	...	...	...	...	...	4	3	3	...	...	1	1 readmission.
Purpura	5	5	...	1	...	...	2	...	...	...	2	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	3	...	
Hæmophilia	2	2	...	...	...	2	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	Readmission.
Pernicious anæmia	8	5	3	...	...	..	1	2	4	1	...	1	...	1	2	4	...	...	...	...	...	1	3	2	...	...	2	...	
Anæmia	16	...	16	1	...	8	7	...	...	...	...	...	1	6	7	1	1	...	...	...	...	15	...	1	...	...	...	...	1 readmission.
Lymphadenoma	3	2	1	...	...	1	1	1	...	...	...	...	...	...	2	1	...	...	...	...	...	...	1	...	...	1	1	...	
General tuberculosis	4	2	2	2	1	...	1	...	...	...	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	1 transferred from surgical side, contracted diphtheria.
II. Diseases of the Skin																															
Erythema nodosum	2	...	2	...	...	...	1	1	...	...	...	1	1	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	Rheumatic pains in 1.
Urticaria	1	...	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	
Lichen planus	2	...	2	...	...	1	...	...	...	1	...	. .	...	...	1	1	...	...	...	...	...	...	2	...	...	...	...	...	
Pityriasis rubra	1	1	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	
Psoriasis	1	1	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	
Pemphigus	1	1	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	No P.M.

Table III—*continued.*

DISEASE.	Number of cases.			Age.								Duration of residence.									Cured.		Relieved.		Unrelieved.		Died.		REMARKS.
	Total.	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Under 1 week	Wks. 1–2	Wks. 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above 1 year	M	F.	M.	F.	M.	F.	M.	F.	
II. Diseases of the Skin —*continued.*																													
Eczema	4	2	2	1	...	...	...	1	...	1	1	...	2	2	...	...	...	...	...	...	...	2	2	...	...	...	...	...	Bronchitis in 1; legs affected in 2; eruption general in 2.
Prurigo	1	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Granuloma fungoides	1	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	
III. Diseases of the Respiratory Organs.																													
Acute laryngitis	5	4	1	...	1	1	...	2	1	...	...	1	2	...	1	...	...	1	...	...	4	1	...	...	...	...	...	...	2 cases mild; gout in 1.
Syphilitic disease of larynx	1	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	Doubtful.
Bilateral paralysis of abductors	1	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	Probably syphilitic.
Congenital web of larynx	1	...	1	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	
Aphonia	1	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	Cause not ascertained.
Bronchitis	77	45	32	19	2	2	6	12	15	13	8	14	19	27	12	4	1	...	...	...	18	15	13	10	2	1	12	6	2 readmissions. No P.M. in 4.
Broncho-pneumonia	5	3	2	5	...	...	...	...	...	...	...	1	1	2	1	...	...	...	...	...	2	2	...	...	...	...	1	...	
Acute pneumonia	91	59	32	5	9	27	20	18	8	4	...	16	20	34	19	2	...	...	...	...	46	26	1	...	...	...	12	6	51 on the right side, 28 on the left, 12 double. No P.M. in 3.
Phthisis	64	39	25	3	...	8	24	16	12	...	1	10	7	19	22	5	1	...	...	...	...	...	20	11	5	4	14	10	2 readmissions. No P.M. in 2.
Hæmoptysis	11	11	...	...	...	1	5	2	2	1	...	...	...	3	7	1	...	...	...	...	10	...	...	...	1	...	...	...	Probably all connected with phthisis.
Pneumothorax	1	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	Connected with phthisis.

Pyo-pneumothorax	1	...	1	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	Rupture of a tubercular cavity.
Pleurisy	42	32	10	3	2	9	11	9	4	3	1	1	5	21	14	1	...	...	...	...	31	8	1	1	...	1	...	...	17 on the right side, 23 on the left, 2 double. Effusion in 39. 1 readmission.
Empyema	14	9	5	1	6	...	1	2	3	...	1	1	...	...	5	5	3	...	...	...	5	2	2	2	...	...	2	1	1 traumatic; 1 transferred from surgical ward. No P.M. in 2. 1 readmission.
Intrathoracic tumour	3	3	...	...	...	...	...	2	1	...	...	...	...	...	1	2	...	...	...	...	2	...	...	...	...	...	1	...	
Pulmonary collapse	2	1	1	2	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	1	Meningitis in 1, not tubercular.
Asthma	3	3	...	...	...	...	2	...	...	1	...	1	1	1	...	...	...	...	...	...	...	...	3	...	...	...	...	...	
Spasmodic dyspnœa	1	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	Cause doubtful.
Cough	3	...	3	1	...	2	...	...	...	...	...	1	1	1	...	...	...	...	...	...	...	3	...	...	...	...	...	...	
IV. Diseases of the Organs of Circulation.																													
Pericarditis	6	2	4	1	...	3	2	...	...	...	...	...	...	3	1	1	1	...	...	...	1	1	...	1	...	1	1	1	Pleurisy in 4; empyema in 1; endocarditis in 1; 1 tubercular.
Adherent pericardium	1	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	
1. *Heart.*																													
Dilatation	1	1	...	...	...	...	...	...	1	...	...	...	...	...	1	...	..	...	...	...	...	...	...	...	...	...	1	...	
Malformation	2	1	1	...	2	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	1	1	...	...	...	
2. *Valvular disease.*																													
Mitral	56	17	39	...	1	14	13	10	11	6	1	5	4	17	18	9	2	1	...	...	...	...	9	30	1	...	7	9	4 readmissions. No P.M. in 3.
Aortic	15	14	1	...	...	...	1	3	9	1	1	2	2	4	4	2	1	...	...	...	...	...	6	1	...	...	8	...	
Mitral and aortic	32	21	11	...	1	5	11	7	3	4	1	6	3	8	12	1	2	...	...	...	...	...	9	6	2	...	10	5	1 readmission. No P.M. in 2.
3. *Vessels.*																													
Thoracic aneurysm	26	22	4	...	...	...	2	5	8	7	4	3	3	7	9	3	...	...	1	...	...	...	10	2	4	1	8	1	4 readmissions.
Abdominal aneurysm	1	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	
Phlebitis	2	...	2	...	...	...	1	1	...	...	...	...	...	...	1	1	...	...	...	...	...	2	...	...	...	...	...	...	Femoral vein in both cases.

Table III—*continued.*

DISEASE	Number of cases.			Age.								Duration of residence.									Cured.		Relieved.		Unrelieved.		Died.		REMARKS.
	Total.	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Under 1 week	Wks. 1–2	Wks. 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above 1 year	M.	F.	M.	F.	M.	F.	M.	F.	
V. Diseases of the Ductless Glands.																													
Exophthalmic goitre	2	...	2	...	...	...	1	1	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	1	...	1	...	...	
Addison's disease	1	1	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	Doubtful.
Enlarged spleen	2	...	2	...	..	1	1	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	2	...	...	...	...	Jaundice in both.
VI. Diseases of the Digestive Organs.																													
1. *Alimentary canal.*																													
Stomatitis	1	1	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	
Tonsillitis	43	19	24	2	4	13	22	2	...	...	...	12	26	4	1	...	...	...	...	...	19	24	...	...	...	...	...	...	5 were students, 3 nurses, and 4 ward maids. Suspicion of scarlet fever in 1. 1 followed diphtheria.
Pharyngitis	1	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	House surgeon.
Stricture of œsophagus	8	7	1	...	...	...	...	...	1	4	3	1	1	3	1	2	...	...	...	...	...	...	1	...	2	...	4	1	All probably malignant. 1 transferred to surgical ward. No P.M. in 1.
Dysphagia	1	1	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	Suspicion of aneurysm.
Dyspepsia	24	6	18	...	1	3	12	2	3	1	2	3	10	9	2	...	...	...	...	...	5	15	1	3	...	...	...	...	
Gastric ulcer	20	1	19	1	...	1	8	9	...	...	1	...	2	3	10	3	2	...	...	...	...	13	1	3	...	2	...	1	1 readmission. Fatal case followed scarlet fever.
Hæmatemesis	8	3	5	...	...	1	3	...	1	3	...	...	2	4	2	...	...	...	...	...	2	4	1	1	...	...	...	...	Albuminuria in 1; gall-stones in 1.
Vomiting	12	4	8	...	...	4	2	2	2	1	1	2	4	2	4	...	...	...	...	...	3	7	1	1	...	...	...	...	Albuminuria in 1; 1 probably due to malignant disease.
Malignant disease of stomach	11	6	5	...	...	...	...	1	4	5	1	1	2	4	2	1	1	...	...	...	...	...	...	...	2	...	4	5	No P.M. in 1.

Gastro-intestinal catarrh	1	...	1	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Died in surgery.
Diarrhœa	21	12	9	10	2	3	4	1	...	1	...	4	7	4	5	1	...	...	...	...	8	7	1	1	1	...	2	1			1 contracted scarlet fever and died; excess of mucus in intestines in the two other fatal cases.
Enteritis	1	...	1	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	No P.M.
Intestinal hæmorrhage	1	...	1	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...		After a burn. From surgical ward.
Dysentery	2	...	2	...	...	...	2	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	1	...	...	...	...	1		
Colic	1	1	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...		
Constipation	13	6	7	3	2	5	...	2	...	1	...	5	3	3	2	...	...	...	...	...	6	7	...	...	...	...	...	...	...		
Intestinal obstruction	7	2	5	1	1	...	1	...	1	1	2	4	2	1	...	...	...	...	...	...	...	1	...	...	...	2	2	2		Cause doubtful in 1 fatal case, not examined P.M. Intussusception in 2; carcinoma of rectum in 2; carcinoma of sigmoid flexure in 1; inguinal hernia in 1.
Perityphlitis	13	11	2	...	1	1	7	3	...	1	...	...	3	5	5	...	...	...	...	...	8	2	2	...	1	...	...	...		
Tubercular ulceration of intestine	1	...	1	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Fæcal abscess; several perforations of intestines.
Perforation of vermiform appendix	2	1	1	...	...	...	1	1	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1		
2. *Peritoneum.*																															
Acute peritonitis	3	2	1	...	1	1	...	...	...	...	1	1	2	...	...	...	...	...	...	...	1	...	...	1	...	...	1	...		Cause doubtful in all. No P.M. in fatal case.
Chronic peritonitis	11	3	8	1	3	2	4	...	1	...	...	...	1	1	3	6	...	...	...	...	...	...	2	4	...	1	1	3		6 tubercular. 1 transferred from surgical ward.
Malignant disease	3	2	1	...	...	...	...	...	...	3	...	...	...	1	1	1	...	...	...	...	...	...	...	...	...	...	2	1		
3. *Liver.*																															
Cirrhosis	26	18	8	...	...	1	...	5	12	3	5	5	3	5	8	2	1	1	1	...	...	...	8	5	...	...	10	3		2 readmissions. No P.M. in 1.
Abscess	1	1	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...		Tropical.
Enlargement	1	...	1	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...			Spleen also enlarged.
Hydatid	1	...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...			
Syphilitic disease	1	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...			

Table III—*continued.*

DISEASE.	Number of cases.			Age.								Duration of residence.									Cured.		Relieved.		Unrelieved.		Died.		REMARKS.
	Total.	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Under 1 week	Wks. 1–2	Wks. 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above 1 year	M.	F.	M.	F.	M.	F.	M.	F.	
VI. Diseases of the Digestive Organs.																													
3. *Liver—continued.*																													
Biliary colic . .	1	1	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	No jaundice.
Obstructive jaundice .	24	10	14	2	...	...	7	6	2	3	4	2	4	8	8	2	...	...	...	...	5	10	2	3	2	1	1	...	1 readmission. Probably due to gall-stones in 12; malignant disease in 1; 9 catarrhal; 1 doubtful. Thickening around bile-ducts in fatal case.
4. *Various.*																													
Abdominal tumour .	20	4	16	...	...	1	...	4	6	7	2	2	3	6	5	2	2	...	...	...	...	...	1	11	2	3	1	2	1 transferred from surgical ward. 1 readmitted twice. 15 probably malignant.
,, abscess .	2	1	1	...	...	1	...	...	...	1	...	...	...	1	...	1	...	...	...	...	...	...	1	...	...	1	...	...	
Ascites . . .	1	...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	Probable malignant disease of abdomen.
Abdominal pain . .	8	4	4	1	1	4	...	1	...	1	...	3	2	2	1	...	...	...	...	...	3	4	...	...	1	...	...	...	1 paroxysmal and of doubtful nature.
VII. Diseases of the Genito-urinary System.																													
Acute nephritis . .	12	6	6	2	2	1	3	2	2	...	...	...	...	6	3	3	...	...	...	...	4	1	1	5	1	...	...	...	6 probably scarlatinal.
Chronic nephritis .	31	19	12	...	...	2	3	11	8	3	4	3	2	7	9	9	1	...	...	...	...	...	10	4	5	3	4	5	No P.M. in 3.
Lardaceous kidneys .	2	1	1	...	...	2	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	1	...	...	...	...	1	

Temporary albuminuria	3	1	2	1	...	1	1	...	...	...	...	...	1	...	2	...	...	...	...	...	1	2	...	...	...	...	...	...	Of doubtful cause. 1 contracted diphtheria. Alcoholism in 1.
Malignant disease of kidney	2	2	...	1	...	...	...	...	1	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	2	...	1 sarcoma; 1 carcinoma.
Renal calculus . .	2	1	1	...	...	...	1	1	...	...	...	...	1	...	...	...	1	...	...	...	...	1	...	...	1	...	...	...	Nephro-lithotomy in 1. 1 to surgical ward.
Pyelitis . . .	2	2	...	...	...	...	1	1	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	2	...	...	...	1 calcareous; 1 tubercular.
Hydronephrosis . .	1	1	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	Dilated bladder also.
Pyonephrosis . .	4	2	2	...	...	...	2	2	...	...	...	1	1	2	...	...	...	...	...	...	...	...	...	...	1	2	1	...	1 from surgical ward. 2 due to calculus.
Hæmaturia . .	5	4	1	...	1	...	3	...	...	...	1	...	...	2	2	1	...	...	...	...	3	...	...	...	1	1	...	...	1 readmission. 1 to surgical ward. Pericarditis in 1. 1 due to calculus.
Movable kidney . .	1	...	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	
Nephralgia . .	1	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	Kidney explored for calculus unsuccessfully.
VIII. Diseases of the Nervous System.																													
Acute meningitis .	7	4	3	...	1	3	2	...	...	1	...	3	2	1	...	1	...	...	...	...	1	1	...	...	...	...	3	2	No P.M. in 2. Disease of ear in 4.
Tubercular meningitis	7	3	4	4	2	1	...	...	...	...	...	4	3	...	...	...	...	...	...	...	...	...	...	...	...	...	3	4	No P.M. in 2.
Acute cerebro-spinal meningitis	4	2	2	3	...	1	...	...	...	...	...	2	...	1	1	...	...	...	...	...	...	...	...	...	...	...	2	2	Disease of ear in 1.
Retraction of head .	1	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	
Hemiplegia . .	21	13	8	...	...	3	2	4	2	5	5	...	...	5	13	3	...	...	...	...	2	1	10	6	1	1	...	...	12 on the right side, 5 of whom were aphasic; 9 on the left side. 1 syphilitic.
Aphasia . . .	2	2	...	...	...	...	...	...	...	2	...	...	1	...	...	1	...	...	...	...	...	...	1	...	1	...	...	...	Dementia in 1.
Cerebral hæmorrhage.	7	5	2	...	...	...	...	1	3	3	...	6	...	...	...	...	...	1	...	...	...	...	...	...	...	...	5	2	
„ softening .	4	2	2	...	...	...	1	...	1	1	1	2	...	1	1	...	...	...	...	...	...	...	...	...	...	...	2	2	Pons affected in 1 from embolism; thrombosis in other 3.
„ tumour .	22	8	14	...	...	7	5	4	4	2	...	1	...	6	10	4	1	...	...	...	1	1	3	7	...	2	4	4	No P.M. in 3. 2 readmissions. 3 probably syphilitic.

Table III—*continued.*

DISEASE.	Number of cases.			Age.								Duration of residence.									Cured.		Relieved.		Unrelieved.		Died.		REMARKS.
	Total.	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Under 1 week	Wks. 1–2	Wks. 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above 1 year	M.	F.	M.	F.	M.	F.	M.	F.	
VIII. Diseases of the Nervous System—*continued.*																													
Cerebral abscess	2	1	1	...	1	1	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	1	Ear disease in 1; 1 due to injury.
Chronic hydrocephalus	3	1	2	2	1	...	...	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	1	1	1	1 died from measles, contracted in hospital.
Headache	10	5	5	...	1	5	1	2	...	1	...	2	6	1	1	...	...	...	...	...	5	3	...	1	...	1	...	...	1 probably syphilitic. Suspicion of tumour in 1.
Insomnia	1	1	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	Mental depression.
Obscure cerebral diseases	2	2	...	...	...	...	...	2	...	...	...	...	1	1	...	...	...	...	...	...	...	...	1	...	1	...	...	...	
Sunstroke	1	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	
Paralysis agitans	4	3	1	...	...	...	...	...	1	2	1	1	...	1	2	...	...	...	...	...	...	...	1	1	2	...	...	...	No shaking in 1; 1 doubtful.
Athetosis	1	1	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	
Bulbar paralysis.	1	1	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	
Tetanus	1	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	Idiopathic.
Tetany	2	2	...	2	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	2	...	...	...	...	...	...	...	Aphthous stomatitis in 1.
Idiocy	3	2	1	...	3	...	...	...	...	...	...	1	1	1	...	...	...	...	...	...	...	...	...	...	2	1	...	...	Spasmodic paralysis in 1.
General paralysis of insane	6	6	...	...	...	...	2	3	1	...	...	...	2	3	1	...	...	...	...	...	...	...	3	...	3	...	...	...	
Other mental disorders	8	4	4	...	...	1	1	1	3	1	1	4	2	1	1	...	...	...	...	...	...	...	...	...	4	3	...	1	Fatal case acute mania; no P.M.
Chorea	25	4	21	...	6	12	7	...	...	...	...	1	2	11	10	1	...	...	...	...	4	18	...	2	...	1	...	...	1 readmission. Pregnancy in 2.
Hysteria	32	1	31	...	...	12	10	4	5	1	...	1	3	9	12	7	...	...	...	...	...	15	1	10	...	6	...	...	2 readmissions. 6 treated by massage, 4 of whom were cured and 2 relieved.

Epilepsy	8	6	2	...	1	...	1	1	3	1	1	2	2	3	1	...	...	...	...	...	1	...	4	2	1	...	...	...	Suspicion of renal disease in 1; mental derangement in 1. The case "cured" was due to injury.
Infantile convulsions	9	7	2	7	2	...	...	...	...	...	...	4	4	1	...	...	...	...	...	...	6	...	1	2	...	...	...	...	1 readmission. Idiocy in 1.
Laryngismus stridulus	1	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	
Cervical pachymeningitis	1	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	
Paraplegia	14	7	7	...	...	1	4	4	3	2	...	1	1	2	1	5	3	1	...	...	...	...	5	1	2	6	...	...	1 transferred from surgical ward and 1 to surgical ward. Spinal caries in 3.
Infantile spasmodic paraplegia	1	1	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	Contracted in measles.
Myelitis	1	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	
Locomotor ataxy	8	5	3	...	...	...	...	4	1	3	...	...	...	3	4	1	...	...	...	...	...	...	2	2	3	1	...	...	
Disseminated sclerosis	11	8	3	...	...	1	2	3	4	1	...	...	...	3	5	1	1	1	...	...	...	...	7	...	1	3	...	...	1 readmission.
Progressive muscular atrophy	3	3	...	...	...	...	...	1	1	...	1	1	1	...	...	1	...	...	...	...	...	...	1	...	2	...	...	...	Bulbar symptoms in 1.
Obscure spinal	1	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	
Acute ascending paralysis	1	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	No change seen in nervous system P.M.
Hammerman's cramp	1	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	
Multiple peripheral neuritis	11	4	7	...	...	...	3	5	2	...	1	1	...	3	4	3	...	...	...	...	2	3	1	3	1	1	...	...	9 due to alcohol.
Paralysis of 3rd nerve	1	...	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	
Facial neuralgia	1	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	
Sciatica	9	5	4	...	...	...	3	3	1	2	...	...	1	6	1	...	1	...	...	...	2	...	3	3	...	1	...	...	1 probably syphilitic. 6 on the right side, 2 on the left.
IX. Poisoning.																													
Alcoholism	15	10	5	...	...	...	5	8	2	...	...	7	4	3	...	1	...	...	...	...	9	2	...	2	...	1	1	...	1 readmission. 3 were cases of delirium tremens; weakness of limbs in 1. Pneumonia in fatal case.
Plumbism	5	5	...	...	...	2	...	1	1	1	...	1	3	1	...	...	...	...	...	...	4	...	1	...	...	...	...	...	4 were cases of colic; 1 of paralysis.

Table III—*continued.*

DISEASE.	Number of cases.			Age.								Duration of residence.								Cured.		Relieved.		Unrelieved.		Died.		REMARKS.
	Total.	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Under 1 week	Wks. 1–2	Wks. 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above 1 year	M.	F.	M.	F.	M.	F.	M.	F.	
IX. Poisoning — *continued.*																												
Opium	3	1	2	...	...	...	1	...	1	1	...	2	...	...	1	...	...	...	...	...	1	2	...	...	...	...	...	...	1 a chronic case of opium taking.
Strychnia	1	...	1	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	
Carbolic acid	1	...	1	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	
Oxalic acid	1	...	1	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	
Chloroform	1	...	1	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	Delirium after chloroform narcosis.
Paraffin	3	1	2	3	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	1	2	...	...	...	...	...	...	
Cyanide of potassium	1	...	1	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	
Iodine	1	1	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	
Nitric acid	1	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	Much staining of œsophagus and charring of stomach.
Ice cream	9	4	5	...	...	8	...	1	...	...	...	6	2	1	...	...	...	...	...	...	4	5	...	...	...	...	...	...	Symptoms were vomiting and diarrhœa.
X. Surgical and Miscellaneous.																													
Debility	6	2	4	...	...	2	1	1	...	1	1	1	2	2	1	...	...	...	...	...	1	3	1	...	...	1	...	...	1 after diphtheria.
Marasmus	5	3	2	3	2	...	...	...	...	...	...	2	...	1	2	...	...	...	...	...	1	...	...	1	...	...	2	1	Nothing definite found P.M. in fatal cases.
Immersion	3	1	2	...	...	...	1	2	...	...	...	2	1	...	...	...	...	...	...	...	1	1	...	...	...	...	...	1	
Abscess	8	5	3	1	...	1	3	2	1	...	...	...	...	1	4	3	...	...	...	...	2	3	1	...	1	...	1	...	2 cases tubercular, 1 of which was fatal.
Disease of ear	4	4	...	...	...	1	2	1	...	...	...	...	...	2	1	1	...	...	...	...	...	...	...	...	...	...	4	...	No affection of brain in any. Thrombosis of sinuses in 2; pyæmia in 1. No P.M. in 1.

Spinal curvature	2	...	2	...	1	...	...	1	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	2	...	...	Transferred to surgical ward.
Malingering	7	7	...	...	...	...	2	2	...	2	1	3	2	1	...	1	...	...	...	...	...	...	...	...	7	...	...	...	
Various	28	9	19	4	1	6	9	1	4	2	1	7	8	5	5	3	...	...	...	...	2	9	5	4	2	3	...	3	2 readmissions. 2 transferred to surgical ward. 1 fatal from cellulitis of neck, 1 from carcinoma of breast, and 1 from ulcer of palate and ear disease.
Unclassified	37	20	17	14	6	6	4	3	1	3	...	19	13	4	1	...	...	...	...	...	18	15	...	...	2	2	...	...	
XI. Diseases of the Female Generative Organs.																													
1. *Uterus.*																													
Amenorrhœa	2	...	2	...	...	...	2	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	1	...	...	
Metrorrhagia	8	...	8	...	...	...	3	3	1	...	1	...	3	3	2	...	...	...	...	...	...	3	...	5	...	...	...	...	Erosion of os in 1; probable pregnancy in 1.
Dysmenorrhœa	3	...	3	...	...	...	2	1	...	...	...	2	...	...	1	...	...	...	...	...	...	...	...	...	...	3	...	...	
Parametritis	25	...	25	...	...	1	15	8	1	...	...	...	3	7	10	4	1	...	...	...	...	18	...	6	...	1	...	...	1 readmission. 1 transferred to surgical ward. Hæmatocele in 1; perimetritis in 1; abscess in 2; probable fibroid in 1; ovaritis and endometritis in 1; cystitis in 1; phlegmasia dolens in 1; pleurisy in 1.
Pelvic abscess	1	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	
Perimetritis	3	...	3	...	...	1	2	...	...	...	...	...	...	2	...	1	...	...	...	...	...	3	...	...	...	...	...	...	
Pelvic hæmatocele	4	...	4	...	...	...	3	1	...	...	...	...	2	1	1	...	...	...	...	...	...	3	...	1	...	...	...	...	
Prolapse	2	...	2	...	...	...	1	1	...	...	...	...	...	...	...	2	...	...	...	...	...	1	...	1	...	...	...	...	
Anteversion	2	...	2	...	...	...	2	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	2	...	...	...	...	Subinvolution in 1; endometritis in 1.
Anteflexion	6	...	6	...	...	1	4	1	...	...	...	1	...	1	2	2	...	...	...	...	...	...	...	5	...	1	...	...	1 transferred from medical ward. Ovaritis in 2; stenosis in 2.

Table III—*continued.*

DISEASE.	Number of cases.			Age.								Duration of residence.									Cured.		Relieved.		Unrelieved.		Died.		REMARKS.
	Total.	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Under 1 week	Wks. 1–2	Wks. 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above 1 year	M.	F.	M.	F.	M.	F.	M.	F.	
XI. Diseases of the Female Generative Organs.																													
1. *Uterus—continued.*																													
Retroversion	3	...	3	...	...	...	...	2	1	...	...	...	...	...	3	...	...	...	...	...	...	1	...	2	...	...	...	...	Stenosis in 2; metritis in 1.
Retroflexion	8	...	8	...	...	...	6	2	...	...	...	...	1	3	3	...	...	1	...	...	...	...	...	7	...	1	...	...	1 from medical ward. Ovaritis in 1; parametritis and prolapsed ovaries in 2.
Retro-lateral version	1	...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	
Retro-lateral flexion	1	...	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	
Endometritis	21	...	21	...	...	1	6	10	4	...	...	1	1	6	6	7	...	...	...	...	...	...	8	...	11	...	2	...	...	Parametritis in 1; anteflexion in 1; retroversion in 1; ovaritis in 1; vaginitis in 1; cystitis in 1.
Uterine polypus	4	...	4	...	...	...	...	2	1	1	...	...	...	3	1	...	...	...	...	...	...	...	4	...	...	...	...	...	...	
,, fibroid	6	...	6	...	...	...	...	2	4	...	...	2	2	...	2	...	...	...	...	...	...	...	...	...	2	...	4	...	...	1 transferred from and 1 to surgical ward.
Malignant disease	20	...	20	...	...	...	1	8	7	3	1	2	5	3	9	1	...	...	...	...	...	...	2	...	12	...	6	...	...	1 transferred to surgical ward. 1 sarcoma. Pyonephrosis in 1; vesico-vaginal fistula in 1.
Subinvolution	2	...	2	...	...	...	...	...	2	...	...	...	...	...	2	...	...	...	...	...	...	...	1	...	1	...	...	...	...	Endocarditis in 1; vaginitis in 1.
Hydro-salpinx	1	...	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	To surgical side.
Pyo-salpinx	1	...	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	Phthisis.
Stenosis of os	4	...	4	...	...	1	...	3	...	...	...	...	...	2	2	...	...	...	...	...	...	...	3	...	1	...	...	...	...	Endometritis in 3; anteflexion in 1.

Hypertrophy of cervix	3	...	3	...	...	...	1	...	2	...	...	...	...	...	1	2	...	...	...	...	...	1	...	2	...	...	...	...	Endometritis in 1; metrorrhagia in 1.
Laceration of cervix	5	...	5	...	...	...	4	1	...	...	...	...	...	1	2	2	...	...	...	...	...	2	...	3	...	...	...	...	Retroversion in 1; subinvolution in 1.
Endocervicitis	3	...	3	...	...	...	3	...	...	...	...	...	...	1	2	...	...	...	...	...	...	1	...	2	...	...	...	...	Dysmenorrhœa in 2.
Broad ligament cyst	1	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	To surgical ward.
2. *Ovaries.*																													
Prolapse	1	...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	
Ovaritis	4	...	4	...	...	...	2	2	...	...	...	...	...	1	2	1	...	...	...	...	...	...	...	2	...	2	...	...	1 to surgical ward. Parametritis in 1.
Ovarian tumour	11	...	11	...	...	...	5	2	2	2	...	1	4	3	2	1	...	...	...	...	...	...	...	1	...	9	...	1	9 transferred to surgical side. Uterine fibroid in 1. Sarcoma of left ovary in fatal case.
3. *Pregnancy and its accidents.*																													
Retained fœtal products	3	...	3	...	...	...	3	...	...	...	...	...	1	1	1	...	...	...	...	...	...	3	...	...	...	...	...	...	Subinvolution in 1.
Pregnancy	4	...	4	...	...	1	...	2	1	...	...	...	1	1	1	1	...	...	...	...	...	2	...	...	...	2	...	...	Parturition in 2.
Vomiting of pregnancy	3	...	3	...	...	...	2	1	...	...	...	1	1	1	...	...	...	...	...	...	...	1	...	1	...	...	...	1	Abortion in 1; death from exhaustion in 1.
Retroversion of gravid uterus	1	...	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	
Placenta prævia	2	...	2	...	...	...	1	1	...	...	...	1	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	
Miscarriage	5	...	5	...	...	...	1		2	...	...	...	1	1	3	...	...	...	...	...	...	3	...	2	...	...	...	...	Endometritis in 1; vaginitis in 1.
Post-partum hæmorrhage	2	...	2	...	...	...	1	...	1	...	...	...	...	2	...	...	...	...	...	...	...	2	...	...	...	...	...	...	
Post-partum septicæmia	1	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	
Post-partum pyæmia	1	...	1	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	
Post-partum debility	1	...	1	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	
Puerperal insanity	1	...	1	...	...	...	1	...	...	...	...	...	1	...	..	...	...	...	...	...	...	...	...	...	...	1	...	...	
Ruptured perinæum	5	...	5	...	...	...	4	...	1	...	...	1	...	...	3	1	...	...	...	...	...	2	...	2	...	1	...	...	Prolapse in 1.
Phlegmasia dolens	2	...	2	...	...	...	...	2	...	...	...	...	...	1	1	...	...	...	...	...	...	2	...	...	...	...	...	...	Both on the left side.

TABLE III—*continued.*

DISEASE.	Number of cases.			Age.								Duration of residence.									Cured.		Relieved.		Unrelieved.		Died.		REMARKS.
	Total.	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Under 1 week	Wks. 1–2	Wks. 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above 1 year	M.	F.	M.	F.	M.	F.	M.	F.	
XI. DISEASES OF THE FEMALE GENERATIVE ORGANS—*continued.*																													
4. *Various.*																													
Epithelioma of labium	1	...	1	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	Suppurative nephritis and pneumonia.
Labial cyst	1	...	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	Also fibroid of uterus.
Urethral caruncle	1	...	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	
Inflammation of vulvo-vaginal gland	2	...	2	...	...	...	1	1	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	2	...	...	...	...	
Atresia vaginæ	1	...	1	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	
Vaginitis	2	...	2	...	...	...	1	...	...	...	1	...	1	...	1	...	...	...	...	...	...	1	...	1	...	...	...	...	Old parametritis in 1.
Sarcoma of vagina	3	...	3	...	...	...	...	...	1	2	...	...	...	...	2	1	...	...	...	...	...	...	...	2	...	1	...	...	1 readmission.
Retained pessary	1	...	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	
Cystitis	6	...	6	...	...	...	1	4	...	...	1	...	1	2	3	...	...	...	...	...	...	3	...	3	...	...	...	...	1 from medical ward. Retroversion in 1.
Epithelioma of bladder	1	...	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	
Pelvic carcinoma	2	...	2	...	...	...	...	2	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	2	...	...	...	
Menopause	1	...	1	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	
Unclassified	1	...	1	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	
Total	2021	982	1039																		489	523	201	267	85	112	207	137	
																					1012		468		197		344		
																					2021								

TABLE IV.—*Table of Mortality.*

DISEASE.	Total.		Age.								Mortality per cent.
	No. discharged.	No. died.	Under 5	5–10	–20	–30	–40	–50	–60	–70	Above 70	
1. GENERAL DISEASES.												
Measles	18	3	3	...	...	...	...	...	...	...	...	14·2
Varicella	1	1	1	...	...	...	...	...	...	...	...	...
Scarlet fever	22	1	...	1	...	...	...	...	...	...	...	4·3
Enteric fever	63	14	...	...	3	7	1	2	1	...	...	18·1
Erysipelas	34	1	1	...	...	...	...	...	...	...	...	2·8
Diphtheria	45	49	41	6	2	...	...	...	...	...	...	52
Post-diphtheritic paralysis	1	1	...	...	1	...	...	...	...	...	...	...
Pyæmia	...	4	...	...	1	3	...	...	...	...	...	...
Noma	...	1	...	1	...	...	...	...	...	...	...	...
Hydrophobia	...	1	...	...	...	...	1	...	...	...	...	...
Acute rheumatism	126	3	...	1	1	1	...	...	...	...	...	2·3
Chronic articular rheumatism	8	1	...	...	...	...	1	...	...	...	...	...
Diabetes mellitus	10	1	...	...	...	1	...	...	...	...	...	9
Purpura	2	3	1	...	...	2	...	...	...	...	...	...
Pernicious anæmia	6	2	...	...	...	...	...	2	...	...	...	...
Lymphadenoma	2	1	...	...	1	...	...	...	...	...	...	...
General tuberculosis	...	4	2	1	...	1	...	...	...	...	...	...
2. DISEASES OF THE SKIN.												
Pemphigus	...	1	...	...	...	...	...	...	...	...	1	...
Granuloma fungoides	...	1	...	...	...	...	...	...	1	...	...	...
3. DISEASES OF THE RESPIRATORY ORGANS.												
Bronchitis	59	18	4	...	1	...	3	4	4	2	...	23·3
Broncho-pneumonia	4	1	1	...	...	...	...	...	...	...	...	...
Acute pneumonia	73	18	1	...	1	4	5	5	2	...	...	19·7
Phthisis	40	24	3	...	2	8	4	6	...	1	...	37·5
Pneumothorax	...	1	...	...	...	1	...	...	...	...	...	...
Pyo-pneumothorax	...	1	...	...	1	...	...	...	...	...	...	...
Empyema	11	3	1	...	...	...	...	1	...	1	...	21·4
Intrathoracic tumour	2	1	...	...	...	...	1	...	...	...	...	...
Pulmonary collapse	...	2	2	...	...	...	...	...	...	...	...	...
4. DISEASES OF THE ORGANS OF CIRCULATION.												
Pericarditis	4	2	1	...	1	...	...	...	...	...	...	...
Dilatation of heart	...	1	...	...	...	...	...	1	...	...	...	...
Mitral	40	16	...	...	5	2	4	3	2	...	...	28·5
Aortic	7	8	...	...	...	...	2	4	...	...	1	53·3
Mitral and aortic	17	15	...	...	2	7	2	...	4	...	...	46·8
Thoracic aneurysm	17	9	...	...	...	1	3	...	4	1	...	34·6
Abdominal aneurysm	...	1	...	...	...	...	1	...	...	...	...	...

Table IV—*continued.*

DISEASE.	Total.		Age.								Mortality per cent.
	No. discharged.	No. died.	Under 5	5–10	–20	–30	–40	–50	–60	–70	Above 70	
5. Diseases of the Digestive Organs.												
Stricture of œsophagus	3	5	...	...	...	...	...	...	2	3	...	...
Gastric ulcer	19	1	1	...	...	...	...	...	...	...	...	5
Malignant disease of stomach	2	9	...	...	...	...	1	2	5	1	...	81·8
Gastro-intestinal catarrh	...	1	1	...	...	...	...	...	...	...	...	...
Diarrhœa	18	3	3	...	...	...	..	...	...	...	...	14·2
Enteritis	...	1	...	...	...	...	...	...	...	1	...	...
Dysentery	1	1	...	...	...	1	...	...	...	...	...	...
Intestinal obstruction	3	4	1	...	...	1	...	. .	...	1	1	...
Tubercular ulceration of intestine	...	1	...	1	...	...	...	...	...	...	...	...
Perforation of vermiform appendix	...	2	...	...	...	1	1	...	...	...	...	...
Acute peritonitis	2	1	...	...	...	...	...	...	...	1	...	...
Chronic peritonitis	7	4	...	.	...	3	...	1	...	...	...	36·3
Malignant disease of peritoneum	...	3	...	...	...	...	...	...	3	...	...	...
Cirrhosis of liver	13	13	..	...	1	...	4	5	1	2	...	50
Abscess of liver	...	1	...	...	...	...	1	...	...	...	...	...
Obstructive jaundice	23	1	...	...	...	...	...	1	...	...	...	4·1
Abdominal tumour	17	3	...	...	...	...	...	...	2	1	...	15
6. Diseases of the Genito-urinary System.												
Chronic nephritis	22	9	...	...	...	1	5	2	...	1	..	29
Lardaceous kidneys	1	1	...	...	1	...	...	...	...	...	...	...
Malignant disease of kidney	...	2	1	...	...	...	...	1	...	...	...	...
Hydronephrosis	...	1	...	1	...	...	...	...	...	...	...	...
Pyonephrosis	3	1	...	...	...	...	1	...	...	...	...	...
7. Diseases of the Nervous System.												
Acute meningitis	2	5	...	...	2	2	...	...	1	..	...	...
Tubercular meningitis	...	7	4	2	1	...	...	...	...	...	...	...
Acute cerebro-spinal meningitis	...	4	3	...	1	...	...	...	...	...	...	...
Cerebral hæmorrhage	...	7	...	...	...	...	1	3	3	...	...	...
„ softening	...	4	...	...	...	1	...	1	1	1	...	...
„ tumour	14	8	...	...	3	...	1	3	1	...	...	36·3
„ abscess	...	2	...	1	1	...	...	...	...	...	...	...
Chronic hydrocephalus	1	2	2	...	...	...	...	...	...	...	...	...
Tetanus	...	1	...	...	...	1	...	...	...	..	...	...
Acute mania	...	1	...	...	...	1	...	...	...	...	...	...
Myelitis	...	1	...	...	...	1	...	...	...	...	...	...
Acute ascending paralysis	...	1	...	...	1	...	...	...	...	...	...	...
8. Poisoning.												
Alcoholism	14	1	...	...	...	...	1	...	...	...	...	6·6
Nitric acid	...	1	...	...	...	1	...	...	...	...	...	...
9. Surgical and Miscellaneous.												
Marasmus	2	3	3	...	...	...	...	...	...	...	...	...
Immersion	2	1	...	...	...	1	..	...	...	...	...	...
Abscess of neck	...	1	1	...	...	...	...	...	...	...	...	...
Disease of ear	...	4	...	...	1	2	1	...	...	...	...	...

Table IV—*continued.*

DISEASE.	Total.		Age.									Mortality per cent.
	No. discharged.	No. died.	Under 5	5–10	–20	–30	–40	–50	–60	–70	Above 70	
9. Surgical and Miscellaneous —*continued.*												
Cellulitis of neck . . .	...	1	...	...	...	...	...	1	...	...	...	...
Carcinoma of breast . . .	...	1	...	...	...	...	...	1	...	...	...	...
Ulcer of palate	...	1	1	...	...	...	...	...	...	...	...	...
10. Diseases of the Female Generative Organs.												
Ovarian tumour . . .	10	1	...	...	...	1	...	...	...	...	...	9
Vomiting of pregnancy . .	2	1	...	...	...	1	...	...	...	...	...	...
Placenta prævia . . .	1	1	...	...	...	...	1	...	...	...	...	...
Post-partum pyæmia . . .	...	1	...	...	...	...	1	...	...	...	...	...
Epithelioma of labium . .	...	1	...	...	...	...	...	...	...	...	1	...

Table V.—*Cases of Infectious Diseases originating in Hospital.*

Initials.	Sex.	Age.	Disease for which admitted.	Disease originating in hospital.	Date of attack.	Result.	Remarks.
J. M.	M.	2½	Abscess of arm	Rötheln	January 19	C. February 3	From Victoria Ward.
E. D.	F.	16	Abscess of thigh	Measles	March 21	C. April 8	From Alexandra Ward.
W. K.	M.	4	Pleurisy	,,	May 6	C. May 26	From Victoria Ward.
E. S.	F.	1½	Chronic hydrocephalus	,,	,, 7	D. June 6	Ditto.
C. T.	F.	30	—	,,	,, 9	C. May 26	Nurse in Anne Ward.
E. B.	F.	2	Necrosis of tibia	,,	,, 10	C. June 20	From Victoria Ward.
C. N.	M.	1¼	Burn	,,	,, 10	C. ,, 20	Ditto.
E. L.	M.	1	Pectoral abscess	,,	,, 12	C. May 23	Ditto.
W. B.	M.	3	Disease of ankle	,,	,, 18	C. July 2	Ditto.
F. F.	M.	3	Infantile spasmodic paralysis	,,	,, 19	C. May 27	Ditto.
E. F.	F.	2	Tubercular abscesses	,,	,, 21	D. ,, 24	Ditto.
W. L.	F.	2	Phthisis	,,	,, 22	D. June 22	Ditto.
G. B.	M.	2	Disease of knee	,,	,, 24	C. July 29	Ditto.
A. P.	M.	1 1/2	—	,,	,, 25	D. May 29	(See foot-note).*
J. B.	M.	1¼	Talipes	,,	,, 29	C. July 2	From Victoria Ward.
P. B.	M.	3	Hydrocele	,,	June 20	C. ,, 29	From Elizabeth Ward.
I. C.	F.	4	Fractured femur	,,	August 7	C. August 22	From Victoria Ward.
A. M.	F.	1⅓	Nævus	,,	,, 19	C. ,, 30	Ditto.
F. H.	F.	4	Pulmonary collapse	,,	,, 31	D. September 6	Ditto.
M. L.	F.	3	—	,,	October 18	C. October 31	(See foot-note).*
M. H.	F.	24	—	Variola	May 11	C. May 27	Nurse in Victoria Ward.
M. H.	F.	34	—	Scarlet fever	Nov. 20, 1885	C. January 1	Sister George.
F. P.	M.	46	Fistula in ano	,,	March 9	C. April 14	From Albert Ward.
F. C.	M.	26	—	,,	April 8	C. May 10	House surgeon.
G. C.	M.	1½	Diphtheria	,,	May 1	C. ,, 31	From Job Ward.
S. O.	M.	26	Abscess of leg	,,	,, 5	C. July 24	From Clayton Ward.

M. B.	F.	1¾	Diarrhœa	„	September 20	D. October 23	From Victoria Ward.
M. S.	F.	—	—	„	October 27	C. November 27	Sister Charity.
H. R.	F.	48	—	Enteric fever	Nov. 11, 1885	C. January 16	Nurse in Erysipelas Wards.
A. W.	F.	10	Necrosis of nose	„	January 11	C. March 24	From Alexandra Ward.
W. A.	M.	6	Empyema	„	„ 16	C. May 8	From Victoria Ward.
E. R.	F.	26	—	„	September 27	C. November 15	Nurse in Christian Ward.
F. H.	M.	5	Empyema	Diphtheria	Nov. 1, 1885	C. January 17	From Victoria Ward.
F. B.	F.	5	Disease of hip	„	February 8	D. February 25	Ditto.
A. W.	M.	3	Talipes	„	March 11	D. March 18	Ditto.
W. B.	M.	2	General tuberculosis	„	April 21	D. April 25	Ditto.
R. C.	M.	3	Cleft palate	„	August 15	D. September 5	Ditto.
E. J.	F.	2	Fractured skull	„	„ 26	D. August 30	Ditto.
C. E.	M.	1½	Contused knee	„	„ 31	C. September 8	Ditto.
F. F.	M.	1¼	Strangulated hernia	„	September 24	D. October 5	Ditto.
M. W.	F.	4	Injury to elbow	„	November 5	D. November 8	Ditto.
W. S.	M.	3	Albuminuria	„	„ 28	C. December 26	Ditto.

* These cases left Victoria Ward when there was measles in the ward, and were readmitted.

SPECIAL ANALYSES AND ABSTRACTS.

I.—MEASLES AND DIPHTHERIA.

Selected fatal case.

Male, æt. 17 months, was admitted on February 16th, and died on the 21st. Began to be ill two or three days before admission with dyspnœa and cough.

On admission temp. was 104°. He had cough with crepitations over both lungs. Some enlarged glands were found in the neck and under the jaws, but no membrane was seen. Next day a measly rash appeared, which remained visible until death. The temp. continued high, and death ensued from broncho-pneumonia.

Post-mortem examination.—Softened membrane was found in larynx and upper part of trachea. There was extensive broncho-pneumonia, with some recent pleurisy.

II.—ENTERIC FEVER.

Selected cases.

(1) *Scarlet rash.*—Male, æt. 19, was admitted May 18th.

On admission there were numerous typhoid spots on chest, abdomen, and back. The spleen was enlarged. The temp. ranged from 100·6° to 104·8°. The tongue was much coated and dry. The bowels confined.

On May 24th (about the end of the third week of the disease) a scarlatinaform rash appeared on the trunk and back, and on the same day he was sick. No mention made of sore-throat or of subsequent desquamation.

Discharged cured on July 12th.

(2) *Empyema.*—Male, æt. 8, was admitted May 4th.

On admission he was very drowsy. The temp. was 102°. The spleen was felt below the ribs, but there were no spots. The tongue was coated and dry, the bowels confined, and the urine was passed into the bed. The temp. became normal on May 24th, but on June 6th it suddenly rose to 103°. The spleen again became enlarged, the tongue dry, and the patient was drowsy and apathetic.

On June 13th, the signs of fluid were detected in the left pleura, and on June 20th eight ounces of pus were removed by the aspirator.

Discharged cured on September 24th.

(3) *Parotid bubo.*—Male, æt. 28, was admitted July 2nd.

On admission much abdominal distension, diarrhœa, no spots, no enlargement of spleen made out. Temp. 100·2°.

On July 6th a swelling of the left parotid gland was noticed. On July 14th he began to have severe abdominal pain, and on the 20th he vomited. On July 26th the right parotid became swollen. There was only slight and irregular pyrexia throughout.

Post-mortem examination.—General peritonitis. Three or four perforations of small intestine. Sloughs separated from ulcers.

(4) *Perforation of large intestine.*—Male, æt. 19, was admitted October 12th. Ill for three weeks.

On admission he was dull, the tongue was dry, the abdomen distended, the spleen enlarged, there were no spots. Temp. 104·6°.

On October 25th he had a rigor, and the next day passed a good deal of blood by the bowel. The abdomen was tender but not much distended. On the 27th the pain became severe, and the distension great. Constant vomiting set in, and he died on the 28th.

Post-mortem examination.—Acute general peritonitis. There was little change in the small intestine, only the lower three or four inches of the ileum being ulcerated. The large intestine was extensively ulcerated, as low down as the anus. In the sigmoid flexure there was a small round perforation.

III.—OSTEO-ARTHRITIS.

Fatal case.

Female, æt. 39, was admitted June 25th. Said to have had rheumatic fever three times. Joints stiff for three years. A fortnight before admission had sore-throat followed by pains in the joints.

On admission there was pain in some of the joints, but no swelling. Most of the joints were distorted and more or less fixed. There was pericardial friction. The urine contained a small quantity of albumen. There was moderate pyrexia until July 4th, when the temp. rose from 103·8° (4 p.m.) to 106·6° (6.45 p.m.), and to 107·4° (7.5 p.m.), when death ensued.

Post-mortem examination.—Synovial membrane of right knee red and pulpy, the condyles of the femur extensively denuded of cartilage, and the semilunar cartilages eroded. No excess of fluid in the joint and no bony outgrowths along the margins. The first phalangeal joint of the right index finger showed marked erosion of the cartilages, and there were some bony outgrowths along the margins. There were fairly recent pericardial adhesions. No valvular disease. Liver very fatty. Peripheral nerves, brain and spinal cord, healthy.

IV.—BILATERAL PARALYSIS OF ABDUCTORS OF LARYNX.

Female, æt. 33, was admitted January 26th, discharged relieved March 14th. History of syphilis five years ago. Dyspnœa and cough for two years.

On admission there was dyspnœa, chiefly respiratory. She had some difficulty in swallowing solids. There was a hoarse barking cough, the vocal cords were much adducted; the right moved slightly during inspiration, the left was quite fixed. No indication of nervous disease. Much improvement under mercury.

V.—CONGENITAL WEB OF LARYNX.

Female, æt. 16, was admitted January 8th. Hoarseness since birth. Between the anterior two thirds of the vocal cords and apparently attached to their under surface was a thin pinkish-white membrane. The cords themselves moved well. The web was touched on three or four occasions with the laryngeal galvano-cautery. Later, adhesions were found to be forming between the split portions of the web. Dilating tubes were introduced at frequent intervals.

On February 10th a thick, whitish-grey mass was seen underneath the glottis, obstructing the front part of the subglottic cavity. The tube was introduced almost daily, but without benefit.

Discharged April 14th.

VI.—DISSEMINATED FIBROUS NODULES IN LUNGS (see under Empyema).

Male, æt. 60, a mason, was admitted on June 22nd, and died the next day.

On admission he had dyspnœa, the signs of bronchitis, and albuminuria.

Post-mortem examination.—The right pleura was found to contain a pint and a half of thin pus and the left a pint. On the right side the eighth and ninth ribs, and on the left the ninth and tenth, were fractured near their angles, and the pleura over the broken ends lacerated. Scattered throughout both lungs were numerous small, hard, pigmented fibrous nodules, and at the right apex there was a large slate-coloured fibrous mass. On microscopical examination all the bodies were found to consist solely of fibrous tissue, there being no caseation and no tubercle bacilli.

VII.—CARDIAC VALVULAR DISEASE.

Selected fatal cases.

Valvular incompetency without structural valvular change.—Male, æt. 45, was admitted March 2nd, died June 3rd. Faintness, dyspnœa, and palpitation, for sixteen months.

On admission the heart was found much enlarged; a double murmur was audible all over the precordial region, but loudest at the base.

Post-mortem examination.—Heart enormous, generally hypertrophied, but the left ventricle was the main seat of the hypertrophy. The mitral, aortic, and other valves were healthy, but the orifices were much larger than natural. The mitral measured five inches, the aortic four inches. Both valves were incompetent. The aorta for two or three inches beyond the valve was very atheromatous and dilated.

Male, æt. 42, was admitted August 6th, and died August 7th. No history.

On admission the heart was much enlarged; a double bruit was heard all over the cardiac area.

Post-mortem examination.—The aortic and mitral valves were not structurally diseased, but the former was incompetent. The aorta was dilated and atheromatous. There was great hypertrophy of the left ventricle.

Male, æt. 40, was admitted June 11th, and died October 1st. Never had acute rheumatism or other serious illness. He ascribed his illness to a severe injury to the left side a year previously. He was in bed eighteen weeks, and on getting up complained of pain in the cardiac region and weakness. He first began to have shortness of breath six months before admission.

On admission he was very anæmic. There was much dyspnœa and palpitation. The area of cardiac dulness was not made out. A rough diastolic murmur was heard all over cardiac area, loudest at lower end of sternum.

Post-mortem examination.—All the cavities of the heart were dilated and full of dark soft clot. All the valves were healthy in structure. The whole of the first part of the aortic arch was much dilated, measuring five inches in circumference at the valves. No atheroma of internal coat of aorta. The aortic valves were stretched and their edges straightened. Left ventricle was much enlarged, but not hypertrophied.

VIII.—MALIGNANT DISEASE OF STOMACH.

(1) *Lympho-sarcoma.*—Female, æt. 53, was admitted on January 21st, and died on February 7th. Her illness began six months before admission with weakness, pallor, and loss of flesh.

On admission she was very pale, and there were the signs of pneumonia of the left lower lobe. In the right hypochondriac region there was a globular movable tumour. Subsequently the same mass could be felt in other positions, such as the left hypochondrium, and its size varied from time to time. A few days after admission a tumour was felt in the hypogastrium, just above the pubes. It was very movable in all directions, and at the post-mortem examination it was found to be a uterine fibroid with a long pedicle. The blood showed a marked increase in white corpuscles, and the rouleaux were badly formed. The spleen was not enlarged, and there were no hæmorrhages. During the first three days there was some pyrexia, but later the temperature was either normal or subnormal. There was no vomiting.

Post-mortem examination.—A white, rather firm, globular tumour, projecting forwards an inch and a half, was seen on the anterior wall of the stomach, close

to the lesser curvature, and rather nearer the pyloric than the cardiac orifice. On the inner surface of the stomach, corresponding to the mass seen externally, a triangular ulcer, an inch and three quarters in its longest diameter, was found. The ulcer led by a free opening into the centre of the tumour for a distance of an inch and a half. The excavation was roughly globular, and its internal surface fairly smooth. A small, rounded, superficial ulcer was seen on the mucous membrane, just to the left of the large ulcer, but it did not open into the tumour. There was a nodule half an inch in diameter at the apex of the lower lobe of the right lung. The walls were well defined, and its contents resembled thick pus. The lower lobe of the left lung showed well-marked red hepatisation with corresponding pleurisy, and there was extensive fatty degeneration of the heart. There were no enlarged glands.

On microscopical examination the tumour of the stomach was found to be composed of small, round, nucleated cells, contained in a reticular stroma. It had a papillary or alveolar arrangement, and in the centre of most of these alveoli a small vessel was seen. The general appearance of the growth suggested that the cellular elements had arisen by proliferation from the cells of the adventitia.

(2) *Carcinoma of pylorus with gastric ulcer.*—Female, æt. 49, single, was admitted on January 24th, and died on March 7th. She had been suffering from pain after food, flatulence, and occasional vomiting for nine years. She had been losing flesh for the last four years, and a year before admission she detected a lump in the abdomen.

On admission she was much emaciated. There was constant vomiting. The abdomen was somewhat distended and tympanitic. Something hard was felt above the umbilicus, but its nature was uncertain.

Post-mortem examination.—The great omentum, which was thickened and bar-like, lay across the abdomen in the epigastric and hypochondriac regions. The coils of intestines were adherent by recent lymph, and there were nodules of new growth all over the peritoneum. The pyloric orifice was narrowed, and the walls infiltrated with fibrous-looking growth. Just beyond the growth there was a deeply-cut gastric ulcer the size of a shilling, the edges of which were firm.

IX.—CHRONIC PERITONITIS.

Fatal case.

Male, æt. 42, coppersmith, was admitted on August 24th, and died on October 10th. Had jaundice four months before admission, and about three months later noticed swelling of abdomen.

On admission there was ascites, and the urine contained much albumen and granular casts. Four days after admission ten pints of serous fluid were removed from the abdomen, and the lower edge of the liver was then felt two inches below the ribs.

On September 20th pleuritic friction was heard on the right side, and on September 23rd the signs of fluid were detected on both sides of the chest.

Post-mortem examination.—Moderate ascites. General matting together of

intestines, the adhesions having a gelatinous appearance. The stomach was adherent to the transverse colon, and the diaphragm to the liver. The peritonitis was evidently of some standing. There was no sign of tubercle or new growth. The capsule of the liver was dull white and thickened. Over the right lobe there were numerous depressions and puckerings, and some parts of the lobe were partially detached. The capsule of the spleen was white and much thickened. The kidneys were smooth. The cortex swollen, opaque, mottled and streaked. There was double pleurisy with effusion, and collapse of lung on both sides.

X.—HYDRONEPHROSIS.

Male, æt. 8, was admitted May 26th, and died May 29th. There was a history of the boy retaining his urine for a long time and then passing large quantities. Two days before admission the abdomen became swollen and painful.

On admission he lay with his knees drawn up. The respiration was mainly thoracic. The abdomen somewhat distended and rigid, especially in the right iliac region, where there was some resistance and tenderness. No definite tumour was detected. Next day a pint of urine was drawn off; it contained one sixth albumen and numerous pus-cells. Next day he began to vomit, and the abdomen was much more tender. Abdominal section was performed, and the right kidney, which was much enlarged, was removed. He died a few hours later.

Post-mortem examination.—Right ureter was dilated and tortuous, and was secured at its upper end by a ligature. The left ureter was about the size of the common iliac vein and contained a little thin pus. The left kidney was rather smaller than normal. The pelves and calyces were much dilated, and contained a little turbid fluid. There was only a small portion of cortex left, and no medullary part. The bladder was very capacious and its walls thinned. No obstruction in the course of ureters. There was a marked degree of phimosis, which was possibly the cause of the dilated bladder, ureters, and pelves of kidneys.

XI.—CEREBRAL TUMOUR.

Cases in which a post-mortem examination was made.

Male, æt. 47, was admitted May 15th, and died June 16th. Symptoms of phthisis for a year. Ten months before admission had loss of sensation and numbness of ring and little fingers of right hand. During the next four months the anæsthesia spread over all the right side, and he then noticed loss of power, mainly in the arm.

On admission there was right hemiplegia; the deep reflexes were exaggerated, the superficial diminished, on the affected side. The skin of the fingers of the right hand was smooth, glossy, and atrophied. Sensation was greatly impaired on the right side, and the anæsthesia was more evident in the upper part of the body than the lower. Sight and hearing were also impaired, but not smell and

taste. The right pupil was larger than the left; both were active. No optic neuritis.

On June 7th ptosis on the right side was noticed, and on the 12th it had become more distinct. There were marked signs of phthisis.

Post-mortem examination.—Some recent lymph between optic commissure and pons, but no tubercles. Much fluid in ventricles. There was a hard, yellowish tumour, the size of a walnut, involving the left optic thalamus and posterior part of internal capsule. There was extensive tubercular disease, with excavation of the right lung; the left was little affected.

Female, æt. 43, was admitted on March 17th and died on June 9th. Injury to head three years ago. A year later had pain in the right ankle, which gradually extended up the leg. Speech became affected six months ago.

On admission the right arm was quite paralysed and rigid, the leg partially paralysed and not rigid. Plantar reflexes normal; patellar reflexes brisk and equal. No definite anæsthesia. No oculo-motor paralysis. No optic neuritis. No definite aphasia. The leg became completely paralysed, and towards the end she was unable to articulate.

Post-mortem examination.—No sign of old head-injury. There was a tumour involving the left ascending frontal convolution and contiguous part of superior frontal, and to involve also their median aspect as well as the marginal convolution and the upper part of the gyrus fornicatus. The tumour, which was an inch and a quarter in diameter, was almost globular. It was covered by a thin layer continuous with the arachnoid, and around the tumour there was a cavity extending upwards and downwards nearly as far as the lateral ventricle.

Female, æt. 40, was admitted on September 7th, and died on October 2nd. Present illness began three weeks ago with shooting pains in the head.

On admission she complained only of severe headache, chiefly in the right occipital region. Two weeks later there was external strabismus of the right eye, and slight ptosis. There was no optic neuritis. She had occasional vomiting.

Post-mortem examination.—There was a firm, yellow, caseous mass, the size of a Tangerine orange, in the right temporo-sphenoidal lobe, occupying the posterior half of the under surface. Nerves at base not implicated.

Female, æt. 19, was admitted on June 3rd, and died on October 8th. Six months before admission the right leg began to drag, and two months later the arm became weak.

On admission there was right hemiplegia with rigidity; no anæsthesia. Headache, giddiness, vomiting, and optic neuritis were present. Her intellect was dull, and she was slow in answering. Two months after admission the rigidity had disappeared, and it was noted that there was some deficiency in localising tactile impressions.

Post-mortem examination.—The left superior parietal lobule and the part continuous with it on the internal aspect of the hemisphere, together with the upper quarter of the two ascending central convolutions, were occupied, as far as their white matter was concerned, by masses of new growth of a pink colour, median consistence, and apparently sarcomatous in nature. There was a large hæmorrhage in the nodule in the superior parietal lobule. The nodules of growth, which were as large as walnuts, appeared to be continuous, and they occupied the white matter of the hemisphere and that only, except in the

region of the anterior half of the corpus callosum, where the growth had passed into the substance of the right hemisphere. In the latter it occupied the part of the corona radiata adjacent to the corpus callosum. The latter was greatly thickened in its whole extent by masses of new growth.

Female, æt. 19, was admitted November 17th, and died November 20th. Had been subject to "hysterical" fits for three months.

On admission there was much headache, and sensation was much blunted all over the left side of the body. No colour-blindness. She became comatose after a series of epileptiform attacks.

Post-mortem examination.—Numerous recent hæmorrhages in the walls of the lateral ventricles and on the surface of the optic thalamus and caudate nucleus. The right optic thalamus was infiltrated with very soft hæmorrhagic growth, which was most extensive posteriorly, where it passed a little way into the internal capsule. The two thalami were adherent, and the inner part of the left had become infiltrated with growth by contiguity.

XII.—ACUTE ASCENDING PARALYSIS.

Fatal case.

Male, æt. 19, was admitted on May 6th. He had had no serious illness. No history of dog bite. Eighteen days before admission fell and injured his back. A week later noticed difficulty in walking, and a few days afterwards the arms and trunk became weak.

On admission the legs were almost completely paralysed, and the muscles soft, flabby, and tender, but not wasted. The movements of the arms were very feeble. There was no unusual irritability of muscles. All the reflexes were abolished. He complained of the hands and feet being numb, but there was no anæsthesia. No loss of control over the evacuations. There was some slight weakness on the left side of the face, and the tongue was protruded to the left. No oculo-motor paralysis, and no ophthalmoscopic changes. There was some dulness with crepitations over the front of the left lung. On May 13th it was noted that he had difficulty in getting rid of the mucus from his throat, and on the 14th he complained that he could not swallow. He died rather suddenly on May 16th, apparently from interference with the respiratory function.

Post-mortem examination.—Pia mater over the posterior surface of the cord injected, but otherwise the membranes and spinal cord were healthy. No naked-eye change in brain, peripheral nerves, and muscles. There was a patch of recent pneumonia on the convex surface of the left upper lobe, and the lower half of the lower lobe was collapsed.

SURGICAL REPORT.

1886.

By G. H. MAKINS.

Preface.

The present report has been prepared on exactly the same lines as its predecessors, except in Tables I and II, where a slight decrease in the totals has been caused by the addition of the numbers of patients admitted on more than one occasion for the same affection in continuous progress.

Many of these cases were discharged and readmitted merely for convenience in reducing the number of patients in a ward at a given time, and hence should not be regarded as distinct ones. Such cases were 39 in number, and the only result on the death rate by their subtraction is to raise it one decimal point. With regard to the death rate, which is somewhat higher than that of the past nine years, I would point out that the number of cases which died on the day of admission was large, amounting to 46, 35 of them from severe injuries, 11 from disease, 7 of the latter being strangulated herniæ. It will be seen that if these deaths be omitted, and a corresponding number be subtracted from the total, that the percentage falls at once to 5·3.

Special points of interest are offered by—

The series of head cases, in which trephining was performed six times for fracture with an uniformly good result. In relation to the question of trephining for later symptoms, the series of cases of concussion, followed by inflammatory signs, are also important.

The two cases of ruptured bladder and one of wounded intestine treated by abdominal section.

The cases of vesical calculus treated by supra-pubic lithotomy, a re-introduction, especially noticeable in the school of Cheselden.

The mode of dressing almost uniformly employed during the year has been disinfection with 2½ to 5 per cent. carbolic lotion, dusting with iodoform powder, and the application of iodoform gauze, either dry or wrung out in 2½ per cent. carbolic lotion, covered with layers of salicylic wool. Bichloride of mercury and chloride of zinc have also been in use, but much less extensively.

Cases of erysipelas occurring in the hospital have been much under the average, and of those arising 55 per cent. originated in Block 3.

General Statement.

Number of surgical beds		241
„ of patients in hospital January 1st, 1886	Males	125
	Females	87
„ „ „ December 31st, 1886	Males	134
	Females	84
„ „ treated to a termination during the year 1886		2437

	Total.	Males.	Females.
Discharged cured	1558	992	566
„ relieved	582	318	264
„ unrelieved	138	87	51
Died	159	103	56
	2437	1500	937

Average number of deaths 7·3 per cent.
„ „ days in hospital 30·7.
(not including the ophthalmic cases).

Table I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.								Duration before admission.							
	M.	F.	-5	-10	-20	-30	-40	-50	-60	+60	Dys. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-6	Mts. 6-12	Chronic.	Not re-
General Diseases.																		
Erysipelas	39	28	6	3	10	12	11	12	11	2	30	19	9	1	..	...	...	
Pyæmia	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	..
Syphilis—																		
Primary	2	1	...	...	...	3	...	...	...	...	...	...	1	2	...	...	...	..
Secondary	1	22	...	...	13	10	...	...	...	...	...	...	...	2	8	2	...	1
Tertiary	1	5	...	...	2	3	...	1	...	...	...	...	...	...	...	5	1	.
Congenital	1	1	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	.
Tetanus	2	...	...	...	...	...	1	1	...	...	2	...	...	...	...	..	...	.
Rickets	4	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	4	.
Local Diseases.																		
Carcinoma—																		
Scirrhus of breast	...	32	...	...	...	...	3	17	5	7	...	...	...	...	6	12	13	
Do. (recurrent)	...	5	...	...	...	...	...	2	2	1	...	...	2	...	1	...	2	.
Upper jaw	1	...	...	...	...	...	...	...	...	1	...	...	...	1	...	. .	...	.
Do. (recurrent)	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	.
Palate	...	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	.
Thyroid gland	1	...	...	...	...	..	...	...	1	...	...	...	...	...	...	1	...	.
Œsophagus	3	1	...	...	...	...	...	...	1	3	...	...	...	...	...	2	2	.
Intestines	1	2	...	...	...	...	2	...	1	...	...	...	...	...	1	...	2	.
Rectum	6	5	...	...	...	...	1	4	2	4	...	...	...	...	2	5	4	.
Parotid	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	.
Chest wall	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	.
Abdominal wall	...	1	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	.
Do. (recurrent)	...	1	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	.
Scalp	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	.
Liver	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	.
Epithelioma—																		
Nose	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	
Do. (recurrent)	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	
Cheek	1	1	...	...	...	...	...	...	1	1	...	...	...	...	1	1	...	
Do. (recurrent)	1	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	
Lip	8	...	...	...	...	...	1	2	1	4	...	...	...	...	...	2	5	
Tongue	15	1	...	...	...	1	1	3	8	3	...	...	...	1	11	2	2	
Tonsil	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	
Larynx	...	2	...	...	...	...	...	1	...	1	...	...	...	...	...	1	1	
Submaxillary region (recurrent)	1	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	
Rectum	2	1	...	...	1	...	...	1	1	...	...	...	...	1	1	...	1	
Scrotum (recurrent)	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	
Vulva (recurrent)	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	
Vagina	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	
Upper jaw	...	1	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	

Classes, according to authorised Nomenclature.

Duration of residence.									Result.				Remarks.
s. 1–4	Dys 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Mts. +12	C	R.	U.	D.	
4	16	21	14	7	...	2	...	...	61	1	...	5	1 chronic elephantiasis.
..	...	...	1	...	...	...	...	...	1	...	...	...	
..	...	1	...	2	...	...	...	...	1	2	...	...	
..	3	8	6	5	1	...	...	...	17	6	...	...	
..	1	2	2	...	...	1	...	...	3	2	1	...	1 discharged for misconduct.
1	...	...	...	1	...	...	...	...	1	...	...	1	
1	...	1	...	.	...	...	...	...	...	...	...	2	See Special Summary.
..	1	1	1	1	...	...	...	...	2	2	...	...	
..	5	11	14	2	...	...	...	...	25	1	4	2	See Special Summary.
1	...	...	3	1	...	...	...	...	3	1	1	...	
..	...	...	1	...	...	...	...	...	1	...	...	...	
..	...	...	...	...	1	...	...	...	...	1	...	...	
..	...	...	1	...	...	...	...	...	1	...	...	...	'Path. Trans.,' vol. xxxvii, p. 485.
..	1	...	...	...	...	...	...	...	...	...	...	1	
1	1	2	...	...	...	...	...	...	...	3	...	1	
1	...	1	...	1	...	...	...	...	...	...	1	2	
1	3	3	2	2	...	...	...	...	2	2	6	1	
..	1	...	...	...	...	...	...	...	...	...	1	...	
..	...	...	1	...	...	...	...	...	...	...	...	1	
..	...	...	1	...	...	...	...	...	1	...	...	...	} Same case.
..	1	...	...	...	...	...	...	...	...	1	...	...	
..	...	...	1	...	...	...	...	...	...	1	..	...	
1	...	...	...	...	...	...	...	...	...	...	1	...	
.	...	...	...	1	...	...	...	...	1	...	...	...	} Same case.
.	...	...	...	...	1	...	...	...	...	1	...	...	
.	1	...	...	1	...	...	...	...	1	1	...	...	
.	1	...	...	...	...	...	...	...	...	...	1	...	
.	3	4	1	...	...	...	...	...	8	...	...	...	
.	4	8	4	...	...	...	...	...	8	2	4	2	4 recurrent.
.	...	...	1	...	...	...	...	...	...	...	1	...	
.	1	1	...	...	...	...	...	...	...	1	1	...	
.	...	1	...	...	...	...	...	...	1	...	...	...	
1	1	...	1	...	...	...	...	...	...	1	...	2	
.	1	...	...	...	...	...	...	...	...	...	...	1	Admitted with pyæmia.
.	...	1	...	...	...	...	...	...	1	...	...	...	
.	...	...	1	...	...	...	...	...	1	...	...	...	
.	...	...	1	...	...	...	...	...	1	...	...	...	

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.								Duration before admission.							
	M.	F.	-5	-10	-20	-30	-40	-50	-60	+60	Dys 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-6	Mts. 6-12	Chronic	Not re-vealed
LOCAL DISEASES—*continued.*																		
Rodent ulcer	3	2	...	...	...	...	1	1	1	2	...	...	...	...	...	1	4	...
Malignant of neck	...	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...
Sarcoma—																		
Skin	1	1	...	...	...	1	...	...	1	...	...	...	...	...	...	1	1	..
Bone, central	2	2	...	...	1	1	2	...	...	...	...	...	...	...	1	1	2	..
„ peripheral	5	4	1	...	2	...	1	1	3	1	...	...	...	...	1	3	5	..
Neck	2	1	...	...	...	1	1	...	...	1	...	...	...	...	...	2	1	..
„ (recurrent)	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	..
Subclavicular region	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	..
Axilla (recurrent)	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	..
Pelvis	1	...	...	..	...	...	...	1	...	...	...	...	...	...	...	1	...	..
Thigh	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	..
Kidney	1	2	1	...	...	...	1	...	1	...	...	...	...	...	1	1	1	..
Testis	2	...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	1	..
Inguinal canal	1	...	...	..	...	...	...	...	...	1	...	...	...	...	1	...	...	..
Lymphadenoma	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	..
Myxoma of pelvis	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	..
Myxo-fibroma	1	2	...	...	1	1	...	1	...	...	...	...	...	...	...	1	2	..
Villous tumour of bladder (recurrent)	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	..
Papilloma	2	2	...	..	1	...	...	1	...	2	...	...	...	...	1	1	2	..
Polypus of rectum	1	...	...	1	...	...	...	...	...	...	...	...	...	...	..	...	1	.
„ naso-pharyngeal	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	.
Adenoma	...	8	...	...	...	...	4	2	2	...	...	...	...	...	...	4	4	.
Angioma	1	1	...	...	...	1	...	1	...	...	...	...	...	...	...	1	1	.
Nævus	5	5	6	1	3	...	...	...	...	...	...	...	...	...	..	...	10	.
Nævoid	3	1	1	1	1	...	1	...	...	...	...	...	...	...	...	...	4	.
Parotid tumour	2	2	...	...	...	2	2	...	...	...	...	...	...	...	...	2	2	.
Adenoid vegetations of pharynx	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	.
Fibroma	4	2	...	...	2	1	1	1	...	1	...	...	...	...	1	...	5	.
„ of ovary	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	.
Fibrous epulis	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	.
Granuloma	1	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	.
Fibro-myoma	...	7	...	...	...	1	2	4	...	...	...	...	...	...	1	2	4	.
Neuroma	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	.
Keloid	...	1	...	...	1	...	..	...	...	...	...	...	...	...	...	1	...	.
Lipoma	3	6	...	...	2	1	2	1	2	1	...	...	...	...	...	2	7	.
Exostosis (spongy)	1	5	...	1	4	1	...	...	...	...	...	...	...	...	2	...	4	.

Classes, according to authorised Nomenclature—continued.

Duration of residence.									Result.				Remarks.
Dys. 1–4	Dys. 5–13	Wks 2–4	Mts 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Mts. +12	C.	R	U.	D.	
1	...	1	2	1	...	...	...	...	2	2	...	1	
...	1	...	...	...	...	...	...	...	...	...	1	...	Nature undetermined, probably carcinoma; implication of vagus.
...	2	...	...	...	...	...	...	...	1	...	1	...	Both melanotic.
...	...	1	1	1	1	...	...	...	3	...	1	..	
1	3	1	1	3	...	...	...	...	4	...	4	1	
..	...	1	2	...	...	...	...	...	2	1	...	...	
..	...	1	...	...	...	...	...	...	1	...	...	...	
..	...	1	...	...	...	...	...	...	1	...	...	...	
..	1	...	...	...	...	...	...	...	...	...	...	1	
..	1	...	...	...	...	...	...	...	...	...	...	1	
..	...	1	...	...	...	...	...	...	...	...	1	...	
..	1	1	...	1	...	...	...	...	...	1	1	1	
..	...	1	1	...	...	...	...	...	1	...	...	1	
..	...	1	...	...	...	...	...	...	...	...	1	...	
..	...	1	...	...	...	...	...	...	...	1	..	...	Fibroid of uterus.
..	...	...	...	1	...	...	...	...	...	1	...	...	
..	...	1	1	...	...	...	...	...	3	...	...	...	1 of upper jaw, 1 of thumb, 1 of sciatic nerve.
..	...	...	...	1	...	...	...	...	...	1	...	...	Supra pubic, cystotomy.
..	1	1	2	...	...	...	...	...	4	...	...	...	1 of nose, 1 of anus, 1 of scalp, 1 of thigh; all removed.
..	1	...	...	...	...	...	...	...	1	.	...	...	
..	...	...	1	...	...	...	...	...	..	1	...	...	Left at own request after two operations.
..	1	4	3	...	...	...	...	...	8	...	...	...	6 of breast (3 cystic), 1 of rectum, 1 of palate.
..	...	1	1	...	...	...	...	...	2	...	..	...	1 of thigh, 1 of scalp; both removed.
..	3	5	2	...	...	...	...	...	6	2	1	1	For fatal case see Special Summary.
..	...	2	2	...	...	...	...	...	3	1	...	...	2 cystic degeneration over chest wall; 1 fatty, 1 fibrous.
..	2	2	...	...	...	...	...	...	4	...	...	...	Mixed glandular tumours; all removed.
..	...	...	1	...	...	...	...	...	1	..	...	...	
..	...	3	3	. .	...	...	...	...	4	1	...	1	1 of cicatrix, 1 loose of abdominal wall. Fatal, see Summary.
..	...	...	1	...	...	...	...	...	1	...	...	...	See Special Summary of Ovariotomies.
..	1	...	...	...	...	...	...	...	1	...	...	..	
..	1	...	...	...	...	..	...	...	1	...	...	...	
1	3	1	2	..	...	...	...	...	1	5	1	...	See Special Summary.
..	...	1	...	...	...	...	...	...	1	...	...	...	Left median nerve, excised and nerve reunited.
..	...	...	1	...	...	...	...	...	1	...	...	...	Of buttock.
..	2	5	2	...	...	...	...	...	8	1	...	...	8 removed; multiple 1, back 2, shoulders 1, thigh 2, neck 3.
2	3	...	...	1	...	...	...	...	4	..	2	...	Femur 1, multiple 1, subungual 3, tibia 1.

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.								Duration before admission.							
	M.	F	-5	-10	-20	-30	-40	-50	-60	+6	Dys. 1-4	Dys. 5-13	Wks 2-4	Mts 1-2	Mts. 2-6	Mts. 6-12	Chronic.	Not re-
LOCAL DISEASES—*continued.*																		
Cysts—																		
Dermoid of chest	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	..
„ ovary	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	..
Sebaceous	3	1	...	...	...	1	1	...	...	2	...	...	...	...	...	...	4	..
Serous of breast	...	2	...	...	...	...	...	2	...	...	...	...	...	...	1	1	...	..
Post-peritoneal	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	..
Ovarian	...	12	...	...	...	5	3	2	2	...	...	...	...	...	1	4	7	..
Parovarian	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	..
Broad ligament	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	..
Hydro-salpinx	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	..
Hydatid of buttock	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	..
NERVOUS SYSTEM.																		
Acute ascending paralysis	1	...	...	...	1	...	...	...	...	...	...	1	...	...	..	...	...	..
Spastic hemiplegia	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	.
Lateral sclerosis	1	...	..	...	...	...	...	1	...	...	...	...	...	..	...	1	...	.
Paraplegia	1	1	...	...	1	...	1	...	...	...	...	...	...	...	...	1	1	.
Epilepsy	2	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	2	.
Neuralgia, 5th nerve	2	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	2	.
„ great sciatic	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	
Spasmodic tic, facial neuralgia	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	.
CIRCULATORY SYSTEM.																		
Aneurysm	1	1	...	...	...	1	...	...	1	...	...	...	...	1	1	...	...	.
„ consolidated	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	..	
Phlebectasis	14	13	...	...	2	8	8	4	5	...	...	...	1	3	1	1	21	.
Thrombosis	1	14	...	...	3	3	5	1	2	1	2	2	4	3	2	2	...	.
DUCTLESS GLANDS.																		
Bronchocele	2	7	...	1	4	1	2	1	1	...	...	...	...	...	...	1	8	.
RESPIRATORY SYSTEM.																		
Acute laryngitis	3	...	3	...	...	...	...	...	...	...	3	...	...	...	...	...	...	.
Œdema of glottis	...	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	.
Empyema	3	2	1	1	...	2	1	...	...	...	...	1	...	1	...	...	3	.
Bronchitis	...	1	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	.
Pneumonia	2	2	2	2	...	...	...	...	...	...	2	2	...	...	...	...	...	.
Phthisis	2	...	...	...	1	...	...	1	...	...	..	...	...	...	...	...	2	.
Aerial fistula	1	...	...	...	...	...	...	1	...	...	...	...	...	..	1	...	...	.
LYMPHATIC SYSTEM.																		
Lymphangitis	5	1	...	...	1	2	2	...	1	...	4	2	...	...	...	...	...	.
Adenitis	2	...	...	...	...	1	1	. .	...	...	...	2	...	...	...	...	...	.
Tuberculosis of glands	3	2	...	1	2	1	1	...	...	...	...	...	2	...	...	...	3	.

Classes, according to authorised Nomenclature—continued.

Duration of residence.									Result.				Remarks.
Dys 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Mts. +12	C.	R.	U.	D.	
...	...	...	1	...	...	...	...	...	1	...	...	...	
...	...	...	...	1	...	...	...	...	1	...	...	...	
1	1	2	...	...	...	...	...	...	4	...	...	...	1 suppurating. All removed.
...	...	...	2	...	...	...	...	...	2	...	...	...	Amputation of breast in both.
...	...	1	...	...	...	...	...	...	...	...	...	1	
...	1	3	3	5	...	...	...	...	10	...	...	2	
...	...	...	...	1	...	...	...	...	1	...	...	...	
...	. .	..	1	...	...	...	...	...	1	...	...	...	
...	...	...	1	...	...	...	...	...	1	.	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	Excised.
...	1	...	...	...	...	...	...	...	...	...	1	...	Transferred to physician.
...	...	...	...	...	...	...	...	...	...	...	1	...	
...	1	...	...	...	...	...	...	...	...	...	1	...	
1	. .	...	1	...	...	...	...	...	...	...	2	...	1 transferred, 1 left at own request.
...	...	1	1	...	...	...	...	...	1	1	...	...	1 traumatic, treated by nerve stretching.
...	...	1	...	...	1	...	...	...	1	1	...	...	
...	1	...	...	...	...	...	...	...	...	1	...	...	
...	...	1	...	...	...	...	...	...	...	...	1	...	2 cases of spastic contracture included with deformities.
...	...	2	...	...	...	...	...	...	2	...	...	...	
...	...	1	...	...	..	...	...	...	...	1	...	...	Popliteal aneurysm included above.
6	6	8	6	1	...	...	...	...	14	12	1	...	Excision of vein in 11 cases.
1	7	5	2	...	...	...	...	...	3	10	...	2	
...	2	...	2	3	2	...	...	...	3	5	...	1	
2	1	...	...	...	...	...	...	...	...	...	...	3	3 tracheotomies.
...	1	...	...	...	...	...	...	...	1	...	...	...	Chronic laryngitis.
...	1	1	2	1	...	...	...	...	1	2	1	1	Fatal case, excision of rib. Cerebral abscess.
...	1	...	...	...	...	...	...	...	1	...	...	..	
2	...	2	..	...	...	...	...	...	2	...	2	...	2 transferred.
...	...	...	2	...	...	...	...	...	...	2	...	...	
...	...	...	1	...	...	...	...	...	...	1	...	...	After cut-throat.
...	4	...	1	1	...	...	...	...	6	...	...	...	
...	2	...	...	...	...	...	...	...	2	...	...	...	
...	...	4	1	...	...	...	...	...	4	1	...	...	

Table I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.								Duration before admission.							
	M.	F.	-5	-10	-20	-30	-40	-50	-60	+60	Dys. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-6	Mts. 6-12	Chronic.	Not re-
Digestive System.																		
Acute tonsillitis	3	1	...	1	1	1	...	1	...	...	1	2	...	1	...	...	...	
Stomatitis	...	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	
Ulcer of mouth	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	
„ tongue	1	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	
„ fauces	1	1	...	...	1	...	...	1	...	...	...	...	...	...	...	...	2	
Stricture of œsophagus	3	...	...	...	...	...	1	...	1	1	...	...	...	...	1	1	1	
Hernia—																		
Inguinal	11	...	2	1	3	4	...	1	...	...	3	1	...	...	2	...	4	
„ strangulated	31	4	4	...	3	6	3	7	4	8	31	3	...	...	...	...	...	
„ irreducible	3	...	1	...	...	1	...	...	...	1	...	...	...	...	...	1	2	
Femoral, strangulated	1	13	...	1	...	...	...	1	7	5	10	4	...	...	...	...	...	
„ irreducible	...	1	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	
Umbilical	1	1	...	...	...	...	2	...	...	...	...	...	...	...	...	...	2	
„ strangulated	...	2	...	...	...	...	1	1	...	...	2	...	...	...	...	...	...	
„ irreducible	1	2	...	...	...	1	1	1	...	...	...	...	...	1	...	1	1	
Internal strangulation	1	1	...	..	...	2	...	...	...	...	2	...	...	...	...	...	...	
Intussusception	...	1	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	
Umbilical fistula	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	
Ulcer of duodenum	1	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	
Typhlitis	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	
Omental tuberculosis	...	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	
Hæmorrhoids	14	10	...	...	1	5	9	5	3	1	...	...	1	...	4	3	16	
Prolapse of rectum	1	2	1	...	2	...	...	...	...	...	...	...	...	1	1	1	...	
Stricture of rectum	1	2	...	...	...	1	1	...	...	1	...	...	...	...	...	1	2	
Ulcer of rectum	1	1	...	...	...	2	...	...	...	...	...	...	...	1	1	...	...	
Fissure of anus	...	3	...	...	...	2	1	...	...	...	...	...	...	1	1	1	...	
Fistula in ano	35	5	...	...	1	13	13	7	6	...	...	...	4	7	10	8	10	
Genito-urinary System.																		
Orchitis	3	...	...	...	...	1	1	...	1	...	2	...	...	...	1	...	...	
Epididymitis	2	...	...	...	1	...	...	...	1	...	1	...	...	1	...	...	...	
Gumma of testis	2	...	...	...	2	...	...	...	...	...	...	...	...	...	..	1	1	
Tubercle of testis	3	...	...	1	...	2	...	...	...	...	...	...	...	1	1	...	1	
Hydrocele of cord	2	...	...	...	2	...	...	...	...	...	...	...	...	...	...	1	1	
„ of tunica vaginalis	11	...	2	...	...	1	3	2	1	2	...	...	...	...	1	2	8	
Varicocele	20	...	...	...	12	8	...	...	...	...	...	...	...	...	1	1	18	
Phimosis	8	...	1	1	4	1	...	...	...	1	1	1	...	...	...	...	6	
Paraphimosis	1	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	
Gonorrhœa	1	21	...	...	15	7	...	...	...	...	...	2	2	5	5	1	1	
Warts	1	1	...	...	1	1	...	...	...	...	...	...	...	...	...	2	...	
Non-infecting chancre	3	7	...	...	3	6	1	...	...	...	...	2	4	...	...	...	...	
Lobular hypert. of breasts	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	
Chronic inflam. induration	...	2	...	...	...	...	...	2	...	..	...	...	...	1	...	1	...	
Mammary abscess	...	7	...	...	...	2	4	...	1	...	...	1	1	...	1	...	3	
Vulvitis	...	1	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	

Classes, according to authorised Nomenclature—continued.

Duration of residence.									Result.				Remarks.
Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Mts. +12	C.	R.	U.	D.	
...	4	...	...	...	...	...	...	...	4	...	...	...	
...	...	...	1	...	...	...	...	...	1	...	...	...	
...	...	...	...	1	...	...	...	...	...	1	...	...	
...	...	1	...	...	...	...	...	...	...	1	...	...	
...	...	1	...	...	...	1	...	...	...	1	...	1	Tubercular in both cases.
...	2	1	...	...	...	...	...	...	...	1	2	...	1 transferred, 1 left at own request. See also New Growths.
...	...	2	4	4	...	...	...	1	10	1	...	...	See Special Table.
16	8	8	3	...	...	...	...	...	24	...	...	11	
...	...	1	2	...	..	...	...	...	3	...	...	...	
3	4	5	2	...	...	...	...	...	7	...	...	7	
...	...	...	1	...	...	...	...	...	1	...	...	...	
1	...	...	1	...	...	...	...	...	...	1	...	1	
...	...	2	...	...	...	...	...	...	2	...	...	...	
...	1	1	1	...	...	...	...	...	...	3	...	...	
1	1	...	...	...	...	...	...	...	...	...	...	2	
1	...	...	...	...	...	...	...	...	...	...	...	1	
...	...	1	...	...	...	...	...	...	...	...	...	1	Tuberculosis of peritoneum.
1	...	...	...	...	...	...	...	...	...	...	...	1	Perforation.
1	...	...	...	...	...	...	...	...	...	...	...	1	Perforation.
...	1	...	...	...	...	...	...	...	...	...	1	...	Transferred to physician.
1	4	14	5	...	...	...	...	...	19	3	1	1	Death from Addison's disease.
1	1	...	1	...	...	...	...	...	2	1	...	...	
...	1	1	1	...	...	...	...	...	...	3	...	...	
...	...	2	...	...	...	...	...	...	1	1	...	...	
...	1	1	1	...	...	...	...	...	3	...	...	...	
3	11	13	10	3	...	...	...	...	31	9	...	...	Operations in 33 cases
...	1	2	...	...	...	...	...	...	2	1	...	...	
1	1	...	...	...	...	...	...	...	2	...	...	...	
...	1	...	...	1	...	...	...	...	1	1	...	...	Castration in 1 case; cellulitis of abdominal wall.
...	...	1	2	...	...	...	...	...	...	3	...	...	1 case in hospital three times.
...	...	2	...	...	...	...	...	...	2	...	...	...	
1	4	3	2	1	...	...	...	...	9	1	1	...	1 left at own request; 1 readmission.
2	1	9	8	...	...	...	...	...	17	1	2	...	
1	4	1	2	...	...	...	...	...	6	2	...	...	All congenital.
1	...	...	..	...	...	...	...	...	1	...	...	...	
1	7	8	6	...	...	...	...	...	20	2	...	...	1 transferred.
...	1	1	...	...	...	...	...	...	2	...	...	...	1 circumcised.
...	3	4	2	1	...	...	...	...	10	...	...	...	
...	1	...	...	...	...	...	...	...	...	...	1	...	Unsuitable for treatment surgically.
...	...	1	1	...	...	...	...	...	1	1	...	...	
...	1	3	2	1	...	...	...	...	3	3	...	1	1 readmission. 1 fatal, see Erysipelas Table.
...	...	...	1	...	...	...	...	...	1	...	...	...	

Table I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.								Duration before admission.							
	M.	F.	-5	-10	-20	-30	-40	-50	-60	+60	Dys. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts 2-6	Mts. 6-12	Chronic.	Not reported
Genito-urinary System— *continued.*																		
Vaginitis	...	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...
Labial fistula	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...
„ abscess	...	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...
Hypertrophied labia	...	1	...	...	...	1	...	..	...	...	...	...	...	...	...	...	1	...
Ovaritis	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	...	2	...
Endometritis	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...
Urethral caruncle	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...
„ abscess	3	...	...	...	...	1	2	...	...	...	1	...	...	...	1	...	1	...
„ hæmorrhage	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...
„ stricture	43	...	...	...	...	9	11	9	6	8	...	...	...	1	3	1	38	...
Incontinence of urine	2	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	2	...
Retention of urine	16	...	...	...	...	2	2	4	3	5	10	1	...	...	...	...	5	...
Extravasation of urine	3	...	...	...	...	...	...	2	1	...	3	...	...	...	...	...	...	...
Urinary fistula	3	...	...	...	...	2	...	...	1	...	...	...	...	1	...	1	1	...
Hypertrophy of prostate	5	...	...	...	...	...	...	...	...	5	...	...	...	...	...	3	2	...
Cystitis	5	2	...	1	1	2	1	...	1	1	1	1	...	3	...	...	2	...
Hæmaturia	3	1	...	...	1	...	1	...	1	1	...	1	...	...	...	2	1	...
Calculus of kidney	6	...	...	...	1	2	1	1	1	...	...	...	...	1	...	1	4	...
„ in bladder	10	1	1	1	...	1	2	...	2	4	...	...	...	2	...	3	6	...
„ in urethra	2	...	1	...	...	...	...	1	...	...	...	1	...	...	...	...	1	...
Pyonephrosis	...	2	...	...	...	1	...	1	...	...	...	...	...	...	...	1	1	...
Osseous System.																		
Acute periostitis—																		
Multiple	...	1	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...
Femur	1	1	...	...	2	...	...	...	...	...	1	...	1	...	...	...	...	...
Tibia	1	1	1	...	...	1	...	...	...	...	1	1	...	...	...	...	...	...
Chronic periostitis—																		
Ilium	1	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Femur	...	1	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Tibia	...	3	1	...	...	...	1	1	...	...	...	...	...	2	...	1	...	...
Humerus	1	...	...	..	...	1	...	...	...	...	...	...	...	...	1	...	...	...
Acute osteomyelitis—																		
Multiple	1	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Femur	1	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Tibia	2	...	...	2	...	...	...	...	...	...	1	...	1	...	...	...	...	...
Epiphysitis—																		
Multiple	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...
Humerus	...	1	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...
Abscess of tibia	1	...	1	...	...	...	...	...	...	...	...	..	...	...	1	...	...	...
Osteitis—																		
Multiple	1	2	...	...	3	...	...	...	...	...	...	...	...	...	...	...	3	...

Classes, according to authorised Nomenclature—continued.

Duration of residence.									Result.				Remarks.
Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Mts. +12	C.	R.	U.	D	
...	...	1	...	...	...	...	...	...	...	1	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	...	...	1	...	...	...	...	...	...	1	...	...	Left at own request.
...	...	...	1	...	...	...	...	...	1	...	...	...	Amputation of labia.
...	1	...	1	...	...	...	...	...	2	...	...	...	Both following vaginal discharge. 1 oöphorectomy.
...	...	1	...	...	...	...	...	...	...	1	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	1	...	2	...	...	...	...	...	3	...	...	...	1 with stricture; 1 admitted with retention.
...	...	1	...	...	...	...	...	...	1	...	...	...	During gonorrhœa.
1	8	19	8	5	2	...	...	...	35	5	1	2	1 left at own request.
...	1	1	...	...	...	...	...	...	2	...	...	...	Both cases of phimosis; both circumcised.
...	7	8	...	1	...	...	...	...	11	3	...	2	6 due to enlarged prostate.
...	1	1	1	...	...	...	...	...	2	...	...	1	
...	...	1	1	1	...	...	...	...	1	1	1	...	1 to return. 1 following trauma; 2 with stricture; 1 erysipelas.
2	1	2	...	...	...	...	...	...	...	3	...	2	1 hæmaturia; 1 atony of bladder.
...	3	3	...	1	...	...	...	...	2	3	2	...	2 transferred. 1 perinæal exploration of bladder; 2 sounded.
...	3	...	1	...	...	...	...	...	1	2	1	...	In all four cases undecided.
...	...	4	...	2	...	...	...	...	...	4	...	2	2 cases diagnosis doubtful.
1	1	6	3	...	...	...	...	...	8	1	1	1	1 transferred.
...	...	1	1	...	...	...	...	...	2	...	...	...	
...	...	...	1	1	...	...	...	...	...	2	...	...	
...	...	...	...	1	...	...	...	...	1	...	...	...	
1	...	...	...	1	...	...	...	...	1	...	...	1	
...	...	1	...	...	...	1	...	...	2	...	...	...	1 case infective; 1 simple local.
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	...	3	...	...	...	...	...	...	...	3	...	...	
...	1	...	...	...	...	...	...	...	1	...	...	...	
...	...	1	...	...	...	...	...	...	...	...	...	1	
...	...	...	...	1	...	...	...	...	1	...	...	...	
...	...	...	1	...	...	1	...	...	1	1	...	...	
...	...	...	1	...	...	...	...	...	...	1	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	...	...	1	...	...	...	...	...	...	...	...	1	Suppuration of knee. Contracted diphtheria.
...	2	1	...	...	...	...	...	...	1	1	...	1	1 case of congenital syphilis.

Table I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.								Duration before admission.							
	M.	F.	-5	-10	-20	-30	-40	-50	-60	+60	Dys. 1-4	Dys 5-13	Wks 2-4	Mts. 1-2	Mts 2-6	Mts. 6-12	Chronic.	Not reported
OSSEOUS SYSTEM—*continued.*																		
Osteitis—																		
Clavicle	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...
Femur	...	2	...	...	1	1	...	...	...	...	...	...	...	1	1	...	...	...
Tibia	3	1	...	1	2	...	1	...	...	...	...	...	...	1	...	...	3	...
Tarsus	7	1	2	1	3	1	1	...	...	...	...	...	1	...	2	1	4	...
Metatarsus	2	1	...	...	2	...	...	...	1	...	...	...	1	1	1	...	...	...
Caries, Multiple—																		
Mastoid process	2	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	2	..
Molar tooth		1	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...
Ribs	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...
Pelvis	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...
Tibia	3	1	2	...	2	...	...	...	...	...	...	...	...	...	1	1	2	..
Tarsus	4	1	1	1	3	...	...	...	...	...	...	...	...	...	1	1	3	...
Necrosis—																		
Multiple	4	...	...	...	4	...	...	...	...	...	...	...	...	...	1	1	2	...
Nasal bones	2	1	...	1	2	...	..	...	...	...	...	...	...	...	...	1	2	...
Superior maxilla	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Inferior maxilla	4	3	1	...	2	3	1	...	...	...	...	...	1	1	2	3	...	...
Mastoid process	2	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	2	...
Ribs	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...
Radius	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...
Pelvis	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Femur	6	5	...	1	4	3	1	1	...	1	...	...	...	...	1	1	9	...
Tibia	9	1	1	1	2	3	2	...	1	...	...	...	...	...	2	...	8	...
Metatarsus	1	1	...	...	...	2	...	...	...	...	...	...	2	...	...	...	...	...
Osteitis deformans	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...
DISEASES OF JOINTS.																		
Arthritis—																		
Hip	31	27	11	18	21	1	5	2	...	...	...	...	...	3	7	18	29	1
Knee	13	12	4	10	5	4	...	1	1	...	...	...	...	3	3	5	13	1
Ankle	5	4	1	1	5	...	1	1	...	...	...	...	...	1	3	1	4	...
Metatarsus	1	1	...	...	...	1	...	...	...	1	...	...	...	1	...	1	...	...
Sacro-iliac	...	2	...	...	2	...	...	...	...	...	...	...	...	1	1	...	...	...
Shoulder	2	...	...	...	...	1	...	1	...	...	..	...	...	...	...	...	2	...
Elbow	7	5	4	...	2	...	1	...	...	5	...	...	...	...	...	5	7	...
Wrist	2	...	...	...	...	1	...	1	...	...	...	...	...	...	...	1	1	...
Chronic rheumatoid arthritis—																		
Multiple	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...
Elbow	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...
Hip	3	...	...	...	1	...	...	1	...	1	...	...	...	...	...	1	2	...
Ankle	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Metatarsus	2	..	...	...	...	1	...	...	...	1	...	...	...	...	...	...	2	...
Tabetic arthropathy	1	1	...	...	...	...	...	2	...	...	...	...	...	...	...	...	2	...

Classes, according to authorised Nomenclature—continued.

Duration of residence.									Result.				Remarks.
s –4	Dys 5–13	Wks 2–4	Mts 1–2	Mts. 2–4	Mts 4–6	Mts. 6–9	Mts. 9–12	Mts. +12	C.	R.	U.	D.	
..	...	1	...	...	...	...	...	...	...	1	...	...	
..	1	...	1	...	. .	...	...	...	...	2	..	...	
..	1	1	1	1	...	...	...	...	2	2	...	...	
..	3	2	1	2	...	...	...	...	3	4	1	...	1 left at own request.
..	1	1	1	...	...	...	...	...	...	3	...	...	
..	...	2	...	...	...	...	...	...	...	2	...	...	
1	...	...	...	...	...	...	...	...	1	...	...	...	
..	...	...	...	1	...	...	...	...	...	1	...	...	
..	...	...	1	...	...	...	...	...	...	...	...	1	
..	...	1	...	1	2	...	...	...	1	3	...	...	
..	...	...	1	4	...	...	...	...	4	1	...	...	
..	...	1	1	1	...	1	...	...	...	4	...	...	
..	...	1	2	...	...	...	...	...	...	2	1	...	1 to return.
..	1	...	...	...	...	...	...	...	1	...	...	...	Palate process.
..	4	2	...	1	...	...	...	...	4	3	...	...	
...	1	...	1	...	...	...	...	...	...	2	...	...	
..	...	...	...	1	...	...	...	...	...	1	...	...	
..	...	...	1	...	...	...	...	...	1	...	...	...	
...	...	...	...	1	...	...	...	...	1	...	...	...	
...	...	3	3	4	1	...	...	...	6	5	...	...	
1	...	...	4	2	1	2	...	...	6	4	...	...	
1	...	1	...	...	...	...	...	...	1	1	...	...	
...	...	...	1	...	...	...	...	...	...	1	...	...	Spinal column.
4	3	10	9	12	11	4	3	2	9	41	2	6	1 transferred.
...	4	4	10	7	...	...	...	...	6	18	1	...	
...	3	...	3	1	2	...	...	...	4	5	...	...	
...	1	1	...	...	...	...	...	...	2	...	...	...	
...	...	1	...	1	...	...	...	...	...	2	...	...	
...	...	2	...	...	...	...	...	...	...	2	...	...	
...	3	3	1	3	2	...	...	...	1	10	1	...	1 refused treatment.
...	2	...	...	...	...	...	...	...	...	2	...	...	
...	1	...	...	...	...	...	...	...		1	...	...	
...	...	1	...	...	...	...	...	...	...	1	...	...	
...	1	...	1	1	...	...	...	...	...	2	1	...	
...	1	...	...	...	...	...	...	...	...	1	...	...	
...	1	1	...	...	...	...	...	...	...	2	...	...	
...	...	2	...	...	...	...	...	...	...	2	...	...	Knee-joint.

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.								Duration before admission.							
	M.	F.	-5	-10	-20	-30	-40	-50	-60	+60	Dys 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts 2-6	Mts. 6-12	Chronic.	Not reported
DISEASES OF JOINTS—*continued.*																		
Puerperal arthritis, knee	...	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...
Acute supp. arthritis, hip	2	...	...	...	1	1	...	...	...	...	1	...	...	1	...	...	...	...
Anchylosis—																		
Jaw	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...
Hip	...	3	...	...	3	...	...	...	...	...	...	...	...	...	...	...	3	...
Knee	4	3	...	...	3	2	1	1	...	...	...	...	...	...	...	1	5	1
Ankle	2	..	...	...	...	1	...	1	...	...	...	...	...	...	1	...	1	...
Elbow	2	1	...	1	...	...	2	...	...	...	...	...	...	...	1	...	2	...
Old excision—																		
Hip	5	2	...	2	5	...	...	...	...	...	...	...	...	...	...	...	7	...
Knee	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Elbow	1	1	...	...	1	...	1	...	...	...	...	...	...	...	...	1	1	...
Loose body in knee	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...
Subluxation, internal semi-lunar cartilage	1	2	...	...	...	1	1	1	...	...	...	...	...	...	...	1	2	...
Hysterical knee	...	2	...	...	...	1	1	...	...	...	...	1	...	...	1	...	...	...
„ ankle	...	1	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...
Synovitis—																		
Multiple	...	1	...	...	1	...	...	...	...	...	...	...	..	...	...	...	1	...
Knee	15	9	1	2	3	11	3	3	1	...	...	2	1	4	6	4	6	1
Elbow	1	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...
Gonorrhœal, multiple	5	...	...	...	...	4	1	...	...	...	...	...	1	2	2	...	...	...
„ of hip	2	...	...	...	2	...	...	...	...	...	...	...	...	1	1	...	...	...
Hæmathrosis of elbow	1	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...
DISEASES OF SPINE	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cervical region	3	3	1	...	3	...	...	2	...	...	...	...	...	...	2	3	...	1
Cervico-dorsal region	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Dorsal region	3	4	...	3	3	1	...	...	...	...	...	...	...	...	1	1	5	...
Dorso-lumbar region	2	1	...	...	1	1	1	...	...	...	...	...	...	1	...	1	1	...
Lumbar region	6	5	1	3	4	1	2	...	...	...	...	...	1	1	3	2	3	1
APPENDAGES TO MUSCULAR SYSTEM.																		
Enlarged bursa	2	2	...	...	...	...	3	...	1	...	...	...	...	...	1	...	3	...
Inflamed bursa	...	10	...	...	2	6	1	1	...	...	2	3	1	1	...	...	3	...
Ganglion	...	1	...	...	...	...	1	...	...	...	...	...	...	1	..	...	...	...
Chronic teno-synovitis	2	2	...	...	...	...	1	...	1	2	...	...	...	...	...	1	3	...
Thecal suppuration	...	2	...	...	...	...	1	...	1	...	...	...	1	1	...	...	...	...
DEFORMITIES.																		
Torticollis	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Talipes equinus	3	...	...	...	2	...	1	...	..	...	...	...	...	...	...	...	3	...
„ equino-varus	6	2	2	5	...	1	...	...	...	...	...	...	...	...	...	...	8	...

Classes, according to authorised Nomenclature—continued.

Duration of residence.									Result.				Remarks.
ys. –4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Mts. +12	C.	R.	U.	D.	
..	...	...	...	1	...	...	...	...	1	...	...	...	Incised and drained.
..	1	1	...	...	...	...	...	...	...	...	...	2	See Special Summary.
..	...	1	...	...	...	...	...	...	1	...	...	...	
1	...	...	...	1	1	...	...	...	2	1	...	...	
..	...	3	3	1	...	...	...	...	4	2	...	1	
..	...	...	1	1	...	...	...	...	1	1	...	...	
..	...	1	1	1	...	...	...	...	3	...	...	...	
..	2	3	...	2	...	...	...	...	2	5	...	...	
..	1	..	...	...	...	...	...	...	...	1	...	...	
..	...	...	1	1	...	...	...	...	...	2	...	...	
..	...	...	1	...	...	...	...	...	1	...	...	...	
..	2	...	1	...	...	...	...	...	1	2	...	...	
..	...	...	1	1	...	...	...	...	...	2	...	...	
..	...	...	...	1	...	...	...	...	1	...	...	...	
..	...	1	...	...	...	...	...	...	...	1	...	...	
..	5	7	11	1	...	...	...	...	10	14	...	...	
..	1	...	...	...	...	...	...	...	...	1	...	...	
..	1	3	1	...	...	...	...	...	...	4	1	...	1 transferred.
..	...	...	1	1	...	...	...	...	1	1	...	...	
..	...	1	...	...	...	...	...	...	...	1	...	...	Hæmophilia. Old joint mischief.
..	...	...	...	...	...	...	...	...	...	...	...	...	All caries.
1	1	1	2	1	...	...	...	...	1	4	1	...	1 discharged at own request.
..	...	1	...	...	...	...	...	...	...	1	...	...	
..	...	2	2	2	1	...	...	...	...	7	...	...	
..	...	1	1	...	...	...	1	...	...	1	1	1	1 transferred.
..	3	1	1	4	1	...	...	1	...	9	...	2	2 readmissions.
1	2	1	...	...	...	...	...	...	2	...	2	...	2 discharged at own request.
..	4	5	...	1	...	...	...	...	9	...	1	...	1 discharged at own request.
..	...	1	...	...	...	...	...	...	1	...	...	...	
1	...	1	2	...	...	...	...	...	1	3	...	...	
..	1	...	..	1	...	...	...	...	2	...	...	...	
..	...	...	...	1	...	...	...	...	1	...	...	...	
..	...	3	...	...	...	...	...	...	1	2	...	...	
..	...	1	2	4	1	...	...	...	3	4	1	...	Contracted diphtheria; transferred.

Table I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.								Duration before admission.							
	M.	F.	-5	-10	-20	-30	-40	-50	-60	+60	Dys. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-6	Mts. 6-12	Chronic.	Not re-
Deformities—*continued.*																		
Talipes valgus	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...
„ varus	4	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	4	...
Flat foot	5	2	...	...	5	2	...	...	...	...	...	...	...	...	...	2	5	...
Hammer toe	3	2	...	...	3	2	...	...	...	...	...	...	...	...	...	...	5	...
Dupuytren's finger	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...
Contracted finger	1	...	...	...	...	...	...	1	..	...	...	...	...	...	...	...	1	...
Cicatricial cont. of axilla	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...
„ eyelid	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...
„ nose	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...
„ lower lip	1	1	...	...	1	1	...	...	...	...	...	...	...	...	...	...	2	...
„ neck	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...
Spastic cont., up. extremity	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...
„ lower „	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...
Deviated septum nasi	2	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	2	...
Genu valgum	7	8	2	4	8	...	1	...	...	...	...	...	...	...	2	3	10	...
Curved tibiæ	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...
Faulty union—																		
Femur	1	..	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Bones of leg	1	. .	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Radius and ulna	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...
Conical stump	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Contracted knee	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...
Malformations.																		
Single harelip	4	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	4	...
Double harelip	3	1	4	...	...	...	...	...	...	...	...	...	...	...	...	...	4	...
Cleft palate	5	5	2	4	3	1	...	...	..	..	...	...	...	...	...	...	10	...
Bifid thumb	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Malformed hand	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	..	1	...
„ leg and foot	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Hypospadias	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Ectopion of bladder	1	...	.	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Imperforate anus	2	1	3	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...
Skin and Cellular Tissue.																		
Sinus	4	...	...	...	...	...	2	...	1	1	...	...	...	1	1	...	2	...
Abscess—																		
Face	2	...	...	...	1	1	...	...	...	...	1	1	...	...	...	...	...	...
Mastoid	1	..	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Neck	7	4	1	...	3	4	2	...	1	...	1	4	2	3	1	...	...	...
Axilla	7	6	3	3	3	2	2	...	...	...	2	7	4	...	...	...	...	...

Classes, according to authorised Nomenclature—continued.

Duration of residence.									Result.				Remarks.
ys. –4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts 4–6	Mts. 6–9	Mts. 9–12	Mts. +12	C.	R.	U.	D.	
..	1	...	...	...	...	...	...	...	1	...	...	...	
1	...	2	1	...	...	...	...	...	2	...	2	...	1 transferred, 1 discharged at own request.
..	1	3	2	1	...	...	...	...	6	1	...	...	
..	...	2	3	...	...	...	...	...	5	...	...	...	
1	...	...	...	...	...	...	...	...	...	...	1	...	Discharged at own request.
..	1	...	...	...	...	...	...	...	1	...	...	...	
..	...	...	...	...	...	1	...	...	1	...	...	...	Admission.
1	...	...	...	...	...	...	...	...	...	...	1	...	Discharged at own request.
..	...	...	1	...	...	...	...	...	1	...	...	...	
1	...	...	...	1	...	...	...	...	1	...	1	..	To return.
..	1	...	...	...	...	...	...	...	...	...	1	...	
..	...	1	...	...	...	..	...	...	...	1	...	...	
..	...	...	1	...	...	...	...	...	...	1	...	...	
..	1	1	...	...	...	...	...	...	1	1	...	...	
..	3	2	...	7	3	...	...	...	11	2	2	...	1 transferred, 1 left at own request; 1 case of late rickets.
..	...	...	...	1	...	...	...	...	1	...	...	...	
..	...	1	...	...	...	...	...	...	1	...	...	...	
..	...	. .	...	...	1	...	...	...	1	...	...	...	
..	1	...	...	...	...	...	...	...	...	...	1	...	
..	...	...	1	...	...	...	...	...	1	...	...	...	
..	...	1	...	...	...	...	...	...	...	1	...	...	Infantile paralysis.
1	...	...	2	1	...	...	...	...	4	...	...	...	
..	...	...	4	...	...	...	...	...	...	2	2	...	
..	...	3	7	...	...	...	...	...	6	1	3	...	1 transferred with diphtheria, 1 too young for operation, 1 in bad general health.
1	...	...	...	...	...	...	...	...	1	...	...	...	
..	...	...	1	...	...	...	...	...	1	...	...	...	
..	...	...	...	1	...	...	...	...	1	...	...	...	
..	1	...	...	...	...	...	...	...	1	...	...	...	
..	...	...	...	...	...	...	1	...	1	...	...	...	
..	3	...	...	...	...	...	...	...	...	...	...	3	
..	...	2	2	...	...	...	...	...	3	1	...	...	
2	...	...	...	...	...	...	...	...	2	...	...	...	
..	1	...	...	...	...	...	...	...	1	...	...	...	
1	5	5	...	...	...	...	...	...	9	2	...	...	
1	8	4	...	...	...	...	...	...	13	...	...	...	

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.								Duration before admission.							
	M.	F.	-5	-10	-20	-30	-40	-50	-60	+60	Dys. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-6	Mts 6-12	Chronic.	Not re-
SKIN AND CELLULAR TISSUE —*continued.*																		
Abscess—																		
Arm	2	1	1	...	1	...	...	...	1	...	...	1	1	...	...	...	1	.
Abdominal wall	2	...	...	...	2	...	...	...	...	...	...	1	...	1	...	...	...	.
Back	3	1	...	1	2	1	...	...	...	...	...	...	4	...	...	...	...	.
Pelvic wall	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	.
Retro-pharyngeal	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	.
Ischio-rectal	3	3	1	...	...	1	3	1	...	...	...	2	1	...	2	1	...	.
Perinæum	1	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	.
Buttock	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	.
Iliac	1	1	...	...	1	...	1	...	...	...	...	...	...	...	1	1	...	.
Groin	5	4	...	1	4	2	1	1	...	...	1	2	2	4	...	...	...	.
Thigh	7	4	1	...	5	1	2	2	...	...	...	2	4	2	1	1	1	.
Ham	4	2	...	5	1	...	...	...	...	...	...	3	2	...	...	...	...	
Leg	7	1	3	1	1	2	...	...	...	1	2	3	1	1	...	...	1	.
Foot	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	.
Multiple	1	2	2	1	...	...	...	...	...	...	...	1	...	1	..	...	1	.
Cellulitis—																		
Neck	...	1	...	...	...	1	...	..	...	...	...	1	...	...	...	...	...	.
Submaxillary	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	.
Arm	1	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	.
Hand	3	3	...	...	1	2	...	1	2	...	...	2	4	...	...	...	...	.
Pelvis	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	
Penis and scrotum	1	...	...	...	...	...	...	1	...	...	1	...	...	...	..	...	...	
Thigh	...	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	
Around knee	...	3	...	...	1	2	...	...	...	...	1	1	1	...	...	...	...	.
Leg	2	...	...	2	...	...	...	...	...	...	1	1	...	...	...	...	...	.
Foot	...	1	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	.
Ulcer—																		
Perinæum	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	
Groin and vulva	...	1	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	
Scrotum	1	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	
Thigh	2	1	...	...	...	1	1	...	1	...	...	...	...	...	1	1	1	
Leg	16	7	...	...	1	3	4	8	7	...	...	1	2	1	5	2	11	
Foot	1	2	...	...	1	1	...	1	...	...	...	...	1	...	...	...	2	
Multiple	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	
Suppurating corn	2	...	...	...	...	...	1	...	...	1	...	1	...	1	...	...	...	
„ ext. auditory canal	...	1	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	
„ gumma	...	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	
Perforating ulcer of foot	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	
Trophic inflammat. of foot	1	1	...	...	...	...	2	...	...	...	...	...	...	...	1	1	...	

Classes, according to authorised Nomenclature—continued.

Duration of residence.									Result.				Remarks.
ys. –4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts 4–6	Mts. 6–9	Mts. 9–12	Mts. +12	C.	R.	U.	D.	
.	1	2	...	...	...	...	...	...	3	...	...	...	
.	...	...	1	1	...	...	...	...	2	...	.	...	
.	...	...	3	1	...	...	...	...	3	1	...	..	
.	...	1	...	...	...	...	...	...	..	1	...	...	
.	...	1	...	...	...	...	...	...	1	...	...	...	Tracheotomised.
.	1	3	1	1	...	...	...	...	5	1	...	...	
.	...	1	...	...	...	...	...	...	1	...	...	...	
.	1	...	..	...	...	...	...	...	1	...	...	...	
.	...	...	2	...	...	...	...	...	1	1	...	...	
.	1	4	2	2	...	...	...	...	6	3	..	...	
.	1	4	3	2	...	1	...	...	6	5	...	...	
.	2	4	...	...	...	...	...	...	6	...	...	...	
.	4	3	1	...	...	...	...	...	4	2	2	...	2 transferred, 1 with meningitis.
.	...	1	...	...	...	...	...	...	...	1	...	...	
.	...	1	2	...	...	...	...	...	1	...	...	2	1 pyæmia ?
.	1	...	...	...	...	...	...	...	1	...	...	...	
.	...	1	...	...	...	...	...	...	1	...	...	...	
.	1	...	...	...	...	...	...	...	1	...	...	...	
.	1	2	3	...	...	...	...	...	4	2	...	...	
.	...	1	...	...	...	...	...	...	...	1	...	...	
.	...	...	...	1	...	...	...	...	1	...	...	...	
.	...	...	1	...	...	...	...	...	1	...	...	...	
.	...	2	1	...	...	...	...	...	3	...	...	...	Probably of bursal region.
.	...	2	...	...	...	...	...	...	2	...	...	...	
.	...	1	...	...	...	...	...	...	1	...	...	...	
.	...	...	1	...	...	...	...	...	1	...	...	...	
.	1	...	...	...	...	...	...	...	1	...	...	...	
.	...	1	...	...	...	...	...	...	1	...	...	...	
.	...	1	2	...	...	...	...	...	3	...	...	...	
.	11	9	1	1	...	...	...	...	7	16	...	...	
.	2	1	...	...	...	...	...	...	3	...	...	...	
.	...	...	1	...	...	...	...	..	...	1	...	...	
.	...	2	...	...	...	...	...	...	1	1	...	...	
.	...	1	...	...	...	...	...	...	1	...	...	...	
.	1	...	...	...	...	...	...	...	1	...	...	...	
.	1	...	...	...	...	...	...	...	1	...	...	...	Tabes dorsalis.
.	1	...	1	...	...	...	...	...	1	1	...	...	

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.								Duration before admission.							
	M.	F.	-5	-10	-20	-30	-40	-50	-60	+60	Dys. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-6	Mts. 6-12	Chronic.	Not re-
SKIN AND CELLULAR TISSUE *continued.*																		
Ingrowing toe-nail	3	...	...	...	1	1	1	...	...	...	...	...	...	..	1	...	2	
Furuncle	1	1	...	...	...	1	1	...	...	...	...	1	...	...	1	...	...	
Carbuncle	2	...	...	...	1	...	...	...	1	...	...	2	...	...	...	...	...	
Gangrene of skin	...	1	1	...	...	...	...	...	...	...	...	1	...	..	...	...	...	
Scleroderma	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	
Lupus of face	1	5	...	...	4	1	1	...	...	...	...	...	...	...	...	1	5	
„ trunk	3	...	...	...	1	1	1	...	...	...	...	...	...	...	...	...	3	
Erythema nodosum	...	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	
Scabies	...	2	...	...	1	1	...	...	...	...	...	...	...	2	...	...	...	
Sycosis menti	1	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	
Psoriasis	1	1	...	...	1	1	...	...	...	...	...	...	...	...	2	...	...	
Gangrene of foot	7	1	...	...	...	...	...	...	5	3	1	...	2	3	2	...	...	
VARIOUS.																		
Removal of suture from jaw	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	
Ozœna	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	
Meningitis	1	1	2	...	...	...	...	...	...	...	2	...	...	...	...	...	...	
Diphtheria	1	1	2	...	...	...	...	...	...	...	...	2	...	...	...	...	...	
Acute rheumatism	...	2	...	...	1	1	...	...	...	...	2	...	...	...	...	...	...	
Fever	...	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	
Hysteria	...	7	...	...	1	5	...	1	...	...	...	1	...	...	2	...	4	
Chronic tuberculosis	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	
Starvation	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	
Parturition	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	
Trivial	3	5	...	...	2	5	...	1	...	...	1	...	1	...	2	2	...	
Malingering	2	...	...	...	...	...	1	1	...	...	...	...	...	...	1	...	1	
Doubtful enteric fever	...	1	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	
Epistaxis	3	1	...	1	...	1	2	...	...	...	2	1	1	...	...	...	...	
	844	616																
	1460																	

Classes, according to authorised Nomenclature—continued.

Duration of residence.									Result.				Remarks.
s. 4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Mts. +12	C.	R.	U.	D.	
2	...	1	...	...	...	...	...	...	2	...	1	...	Left at own request.
	1	1	...	...	...	...	...	...	2	...	...	...	
	...	1	...	...	...	...	...	...	2	...	...	...	
	1	...	...	...	...	...	...	...	...	...	...	1	Congenital syphilis ?
	...	...	...	...	...	...	...	...	...	...	1	...	Came for exhibition only.
	...	1	5	...	...	...	...	...	3	3	...	...	
	...	1	1	...	...	...	...	...	1	2	...	...	
	...	1	...	...	...	...	...	...	1	...	...	...	
2	...	...	...	...	...	...	...	...	...	2	...	...	
	...	...	...	...	...	...	...	...	...	1	...	...	
	...	1	...	1	...	...	...	...	2	...	...	...	
2	1	1	4	...	...	...	...	...	3	1	1	3	Diabetes 3; arterial degeneration 5.
	...	...	1	...	...	...	...	...	1	...	...	...	After epithelioma of tongue.
	1	...	...	...	...	...	...	...	...	1	...	...	
	...	1	...	...	...	...	...	...	...	...	...	2	
2	...	...	...	...	...	...	...	...	...	...	...	2	
	...	1	...	...	...	...	...	...	1	...	1	...	1 transferred.
	...	...	1	...	...	...	...	...	1	...	...	...	
	4	...	...	2	1	...	...	...	2	4	1	...	1 transferred.
	...	...	1	...	...	...	...	...	...	...	...	1	
	...	...	...	...	...	...	...	...	...	...	...	1	
	...	...	1	...	...	...	...	...	1	...	...	...	
	2	1	2	2	...	...	...	...	5	3	...	...	
	1	1	...	...	...	...	...	...	...	...	2	...	
	...	...	...	...	...	...	...	...	...	...	1	...	Transferred.
	...	...	...	...	...	...	...	...	3	...	1	...	Transferred.
									827	425	99	109	
									1460				

Table II.—*Abstract showing Injuries, &c., in*

Injuries.	Sex.		Age.								Duration before admission.						
	M.	F.	-5	-10	-20	-30	-40	-50	-60	+60	Hrs. 1-6	Hrs. 7-13	Hrs. 13-24	Dys. 1-3	Dys. 3-6	Dys. +6	Not reported.
General Injuries.																	
Shock	...	1	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...
Burns	12	18	16	3	3	3	2	1	...	2	...	30	...	...	...	...	...
Scalds	22	10	25	4	1	1	1	...	...	...	...	29	...	3	...	...	...
Snake bite	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...
Local Injuries.																	
Contusion of head	2	1	...	...	...	...	...	...	2	1	...	3	...	...	...	...	...
Wounds of scalp	23	8	3	2	2	7	2	8	4	3	...	28	...	...	2	1	...
Concussion	70	15	21	8	19	16	13	2	4	2	...	74	6	4	1	...	...
Fracture of vault of skull	2	...	1	...	...	1	...	...	...	...	...	2	...	...	...	...	...
Do., compound	2	...	...	1	...	...	1	...	...	...	...	2	...	...	...	...	...
Do., depressed	1	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Do., compound depressed	5	1	1	...	2	2	1	...	...	...	...	6	...	...	...	...	...
Fractures of the base	13	3	...	1	3	2	2	6	2	...	...	15	...	...	...	1	...
Do., doubtful	2	2	...	1	...	1	1	...	1	...	...	2	...	...	...	1	1
Traumatic cephalhydrocele	..	1	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Contusion of the face	1	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Wounds of the face	1	3	2	...	1	1	...	...	...	...	...	4	...	...	...	...	...
Comp. fracture of zygoma	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...
Do., nasal bones	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...
Do., malar bone	1	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...
Do., inferior maxilla	2	2	...	...	...	1	1	1	...	1	...	3	...	...	1	...	...
Wounds of the orbit	2	...	...	...	...	...	2	...	...	...	...	2	...	...	...	...	...
„ eyeball	7	1	...	...	3	2	2	1	...	...	...	8	...	...	...	...	...
Rupture of the eyeball	1	1	...	...	...	1	1	...	...	...	...	2	...	...	...	...	...
Foreign body in eyeball	1	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...
„ ear	1	1	...	2	...	...	...	...	...	...	...	...	...	1	1	...	...
Dislocated nasal cartilage	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...
Injuries to the neck—																	
Contusion	2	...	...	...	...	1	1	...	...	...	...	2	...	...	...	...	...
Wound	3	1	1	...	...	...	1	2	...	...	...	4	...	...	...	...	...
Contusion of larynx	1	...	...	...	...	...	1	...	...	...	...	1	...	...	..	...	...
Foreign body in larynx	...	1	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...
Injuries to the chest—																	
Contusion	2	2	...	1	1	1	...	1	...	...	...	3	...	...	1	...	...
Wound	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Fracture of ribs	14	2	2	...	1	1	4	4	2	2	...	16	...	...	...	...	...
„ sternum	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...
Wound of lung	1	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...
Foreign body in trachea	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...
Injuries to the back—																	
Contusion	5	2	...	...	...	3	2	1	...	1	...	4	1	...	...	2	...

Classes, according to authorised Nomenclature.

Duration of residence.									Result.				Remarks.
s. –4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Mts. +12	C.	R.	U.	D.	
1	...	...	...	...	...	...	...	...	1	...	...	...	
8	8	2	5	5	1	...	1	...	18	1	...	11	
4	7	10	1	...	...	...	...	...	20	2	1	9	
.	1	...	...	...	...	...	...	...	1	...	...	...	Adder.
.	3	...	...	...	...	...	...	...	3	...	...	...	
)	14	6	...	1	...	...	...	...	30	...	1	...	1 discharged for misbehaviour.
3	38	11	3	...	...	...	...	...	85	...	...	...	
2	...	...	...	...	...	...	...	...	...	...	...	2	
.	1	1	...	...	...	...	...	...	2	...	...	...	
.	...	...	1	...	...	...	...	...	1	...	...	...	1 transferred.
.	...	1	4	1	...	...	...	...	5	...	1	...	
3	1	6	5	1	...	...	...	...	11	...	1	4	1 recovery with wounded knee-joint.
.	2	1	1	.	...	...	...	...	2	1	1	...	
	...	1	...	...	...	...	...	...	...	1	...	...	'Clin. Soc. Trans.,' vol. xx.
	...	...	1	...	...	...	...	...	1	...	...	...	
	1	2	...	...	...	...	...	...	4	...	...	...	
	1	...	...	...	...	...	...	...	1	...	...	...	
	...	...	...	...	...	...	...	...	1	...	...	...	
	...	...	1	...	...	...	...	...	1	...	...	...	
	2	1	1	...	...	...	...	...	3	...	...	1	Fatal case double.
	2	...	...	...	...	...	...	...	2	...	...	...	1 division of optic nerve and branches of 3rd.
	6	...	...	...	...	...	...	...	8	...	...	...	
	1	...	...	...	...	...	...	...	2	...	...	...	
	1	...	...	...	...	...	...	...	1	...	...	...	
	...	...	...	...	...	...	...	...	2	...	...	...	
	1	...	...	...	...	...	...	...	1	...	...	...	
	1	...	...	...	...	...	...	...	2	...	...	...	
	3	1	...	...	...	...	...	...	3	...	...	1	3 self-inflicted of throat.
	...	...	...	...	...	...	...	...	1	...	...	...	
	1	...	...	...	...	...	...	...	1	...	...	...	Doubtful.
	1	1	1	...	...	...	...	...	4	...	...	...	
	...	...	1	...	...	...	...	...	1	...	...	...	Gunshot, self-inflicted. Wound of lung; pneumonia.
	3	4	3	1	...	...	...	...	11	...	1	4	1 transferred with measles.
	...	1	...	...	...	...	...	...	1	...	...	...	Fractured ribs also.
	1	...	...	..	...	...	...	...	1	...	...	...	Bullet retained.
	...	...	1	...	...	...	...	...	1	...	...	...	Ear-ring, spontaneous expulsion after 1 month.
	3	1	...	...	...	...	...	...	6	1	...	...	

TABLE II.—

INJURIES.	Sex.		Age.								Duration before admission.						
	M.	F.	-5	-10	-20	-30	-40	-50	-60	+60	Hrs. 1-6	Hrs. 7-12	Hrs. 13-24	Dys. 1-3	Dys. 3-6	Dys. +6	Not reported
LOCAL INJURIES—*continued.*																	
Injuries to the spine—																	
Sprain	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...
Fracture	2	...	...	...	...	...	2	...	...	...	...	2	...	...	...	...	...
„ doubtful	1	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...
Injuries to the abdomen—																	
Contusion	5	3	...	3	2	...	1	2	...	...	...	8	...	...	...	...	...
Wound	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...
Rupture of liver	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...
„ kidney	1	...	...	1	...	...	...	...	...	...	..	1	...	...	...	...	..
Wound of intestine	2	...	...	...	2	...	...	...	...	...	...	2	...	...	...	...	..
Foreign bodies in digestive tract	...	2	...	...	...	1	1	...	...	...	...	...	...	...	...	1	1
Injuries to pelvis—																	
Contusion	3	1	...	...	2	1	...	...	1	...	...	4	...	...	...	...	..
„ of perinæum	2	...	...	...	...	...	...	2	...	...	...	2	...	...	...	...	..
Rupture of bladder	3	1	...	...	...	2	2	...	...	...	...	...	...	4	...	...	..
„ urethra	4	...	...	...	1	3	...	...	...	...	...	2	...	2	...	...	..
Wound of buttock	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	..
„ perinæum	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	..
„ scrotum	2	...	...	...	1	...	...	1	...	...	...	1	1	...	...	...	..
Fracture of pelvis	6	2	1	...	...	1	1	4	1	...	...	8	...	...	...	...	..
„ „ compound	1	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	..
Injuries to upper extremity—																	
Wound of arm	4	1	...	...	3	...	1	1	...	...	...	5	...	...	...	...	..
„ forearm	9	5	...	2	2	5	3	...	2	...	...	14	...	...	...	...	..
„ hand	2	...	...	...	1	1	...	...	...	...	...	2	...	...	...	...	..
Slate pencil in hand	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	..
Injury to ulnar nerve	...	2	...	...	1	...	1	...	...	...	...	...	...	...	1	1	..
„ median	...	2	...	...	...	1	...	...	1	...	...	...	...	...	...	2	..
Bulbous digital nerve	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	1	.
Dislocation of shoulder	2	7	...	...	1	...	...	1	2	5	...	...	...	1	...	8	.
„ clavicle	2	...	...	...	...	1	...	...	1	...	...	2	...	...	...	...	.
„ thumb	2	1	...	...	1	...	...	1	1	...	...	2	...	...	...	1	.
„ finger	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	.
Fracture of scapula	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	.
„ clavicle	7	2	1	...	1	1	1	3	1	1	...	9	...	...	...	...	.
„ humerus	7	...	...	1	3	1	1	...	...	1	...	5	...	...	...	2	.
Do., compound	3	...	...	...	...	...	...	1	...	2	...	3	...	...	...	...	.
Do., comp. comminuted	4	...	...	1	1	1	1	..	...	...	...	4	...	...	...	...	.
Radius and ulna	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	.
Do., compound	...	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	.
Ulna, compound	2	...	...	...	1	...	...	1	...	...	...	2	...	...	...	...	.
Hand	...	1	...	...	1	...	...	...	...	...	...	1	...	...	...	...	.
Do., compound	7	...	...	1	1	1	1	2	1	...	...	7	...	...	...	...	.
Do., comp. comminuted	9	...	...	...	3	...	2	3	1	...	...	9	...	...	...	...	.

continued.

Duration of residence.									Result.				Remarks.
ys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Mts. +12	C.	R.	U.	D.	
1	...	...	...	...	...	...	...	...	1	...	...	...	
...	...	...	2	...	...	...	...	...	1	...	1	...	Refused treatment, but nearly well.
...	...	...	1	...	...	...	...	...	1	...	...	...	
2	5	...	1	...	...	...	...	...	8	...	...	...	
...	1	...	...	...	...	...	...	...	1	...	...	...	
1	...	...	...	...	...	...	...	...	...	...	...	1	Fractured ribs. Other cases with fractures.
...	...	1	...	...	...	...	...	...	1	...	...	...	
2	...	...	...	...	...	...	...	...	...	...	...	2	Both gunshot.
...	1	1	...	...	...	...	...	...	2	...	...	...	1 in œsophagus, false teeth; 1 in intestines.
1	2	1	...	...	...	...	...	...	4	...	...	...	
...	...	...	1	...	...	1	...	...	2	...	...	..	1 pre-prostatic puncture.
2	...	...	2	...	...	...	...	...	2	...	...	2	
...	...	1	2	1	...	...	...	...	4	...	...	...	
...	...	...	1	...	...	...	...	...	1	...	...	...	Secondary hæmorrhage; ligature of sciatic.
...	...	...	1	...	...	...	...	...	1	...	...	...	
...	...	2	...	...	...	...	...	...	2	...	...	...	2 exposing testis.
1	...	3	3	1	...	...	...	...	7	...	...	1	1 other included in Special Summary.
1	...	...	...	...	...	...	...	...	...	...	...	1	
1	...	1	2	1	...	...	...	...	3	2	...	...	
1	4	7	2	...	...	...	...	...	14	...	...	...	
...	2	...	...	...	...	...	...	...	2	...	...	...	1 gunshot.
1	...	...	...	...	...	..	...	...	...	1	...	...	
...	...	1	1	...	...	...	...	...	2	...	...	...	
...	...	1	1	...	...	...	...	...	2	...	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	
1	6	2	...	...	...	...	...	...	6	3	...	...	3 males extra in Special Summary.
1	...	1	...	...	...	...	...	...	1	1	...	...	1 male extra in Special Summary.
1	1	...	1	...	...	...	...	...	3	...	...	...	1 excision of joint.
...	1	...	...	...	...	...	...	...	1	...	...	...	
...	1	...	...	...	...	...	...	...	1	...	...	...	
2	4	2	1	...	...	...	...	...	9	...	...	...	3 males extra included in Special Summary.
2	1	3	1	...	...	...	...	...	5	1	1	...	1 male extra included in Special Summary.
...	1	1	1	...	...	...	...	...	3	...	...	...	
...	1	...	2	1	...	...	...	...	4	...	...	...	
...	1	...	...	...	...	...	...	...	1	...	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	...	...	2	...	...	...	...	...	2	...	...	...	
...	...	...	1	...	...	...	...	...	1	...	...	...	
4	1	1	1	...	...	...	...	...	7	...	...	...	
5	...	2	2	...	...	...	...	...	9	...	...	...	

TABLE II.—

INJURIES.	Sex.		Age.								Duration before admission.						
	M.	F.	-5	-10	-20	-30	-40	-50	-60	+60	Hrs. 1-6	Hrs. 7-13	Hrs. 13-24	Dys. 1-3	Dys. 3-6	Dys. +6	Not reported.
LOCAL INJURIES—*continued.*																	
Injuries to lower extremity—																	
Contusion of thigh	5	1	...	...	2	1	1	1	...	1	...	6	...	...	...	...	...
,, leg	5	3	...	1	...	1	1	...	4	1	...	8	..	...	...	...	...
,, foot	2	2	...	...	1	...	3	...	...	...	...	3	...	...	...	1	...
Rupture of patellar tendon	...	1	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...
Wound of thigh	4	...	...	1	1	...	...	1	1	...	...	4	...	...	...	...	...
,, knee	6	...	1	1	2	1	...	...	1	...	...	6	...	...	...	...	...
,, leg	9	...	...	...	3	3	1	1	1	...	...	8	...	...	1	...	...
,, foot	1	1	...	1	...	...	1	...	...	...	...	2	...	...	...	...	...
Needle in knee	...	1	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...
Dislocation of hip	3	...	...	...	1	1	1	...	...	...	...	3	...	...	...	...	...
,, foot	2	...	...	...	2	...	...	...	...	...	...	1	...	...	...	1	...
Fracture of neck of femur	3	3	...	...	...	...	...	1	...	5	...	6	...	...	...	...	...
,, shaft of femur	47	17	19	9	8	2	6	10	3	7	...	64	...	...	...	...	...
Do., compound	2	...	...	1	...	...	1	...	...	...	...	2	...	...	...	...	...
Fracture of patella	21	8	...	...	...	10	6	10	3	...	...	25	...	...	...	4	...
Do., compound	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...
Fracture of tibia and fibula	58	18	3	7	10	8	14	19	7	8	...	76	...	...	...	...	...
Do., compound	6	3	1	...	2	...	3	2	...	1	...	9	...	...	...	...	...
Do., comp. comminuted	1	1	...	...	...	...	1	1	...	...	...	1	...	...	...	1	...
Ununited tibia and fibula	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...
Fracture of tibia	30	6	2	7	6	3	9	3	3	3	...	34	...	...	1	1	...
Do., compound	3	...	...	...	...	1	...	2	...	...	...	2	...	...	...	...	...
Do., comp. comminuted	1	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...
Fracture of fibula	42	5	...	3	6	10	11	12	1	4	...	46	...	...	1	...	...
,, foot	4	...	...	...	3	...	...	1	...	...	...	4	...	...	...	...	...
Do., comp. comminuted	3	...	...	1	...	1	...	1	...	...	...	3	...	...	...	...	...
Multiple fracture	7	...	...	2	1	1	...	1	2	...	...	7	...	...	...	...	...
Do., comp. comminuted	1	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...
Injuries to joints—																	
Wound of wrist	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...
,, metacarp. phalang.	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...
,, knee	5	...	...	3	...	2	...	...	...	...	...	3	...	...	...	1	1
,, ankle	1	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...
Traumatic synovitis of hip	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...
,, ,, of knee	19	3	...	...	6	8	5	2	1	...	...	16	4	1	...	1	...
,, ,, of ankle	5	...	...	...	2	1	1	1	...	...	...	...	5	...	...	...	...
Ophthalmic cases not included in above report	150	138															
Cases of surgical disease from Table I	844	616															
	2437																

continued.

Duration of residence.									Result.				Remarks.
Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Mts. +12	C.	R.	U.	D.	
2	3	1	...	...	...	...	...	...	5	1	...	...	
...	4	2	1	1	...	...	...	...	8	...	...	...	
1	...	3	...	...	...	...	...	...	4	...	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	2	...	...	1	1	...	...	...	4	...	...	...	2 amputations of thigh.
1	1	3	1	...	...	...	...	...	6	...	...	...	1 contracted diphtheria.
1	5	1	2	...	...	...	...	...	8	...	1	...	1 gunshot wound, refused treatment.
...	1	1	...	...	...	...	...	...	2	...	...	...	1 needle removed.
1	...	...	...	...	...	...	...	...	1	...	...	...	
1	1	1	...	...	...	...	...	...	2	...	...	1	Fractured pelvis.
1	...	1	...	...	...	...	...	...	1	1	...	...	
...	...	1	5	...	...	...	...	...	4	2	...	...	
5	1	12	33	8	3	1	...	...	58	1	...	5	
...	...	...	1	...	1	...	...	...	2	...	...	...	
1	4	8	13	2	1	...	...	...	26	3	...	...	
...	...	...	...	1	...	...	...	...	1	...	...	...	
1	16	43	13	3	...	...	...	...	76	...	...	...	
...	...	1	4	4	...	...	...	...	9	...	...	...	
1	...	...	...	1	...	...	...	...	1	...	...	1	
...	...	...	...	...	1	...	...	...	1	...	...	...	
3	16	12	3	2	...	...	...	...	35	1	...	...	1 greenstick.
...	...	1	1	1	...	...	...	...	3	...	..	...	
...	...	...	1	...	...	...	...	...	1	...	...	...	
5	26	14	2	...	...	...	...	...	47	...	...	...	
...	1	2	1	...	...	...	...	...	4	...	...	...	
...	...	1	1	1	...	...	...	...	3	...	...	...	
1	2	2	2	...	...	...	...	...	5	1	...	1	
...	...	...	...	...	...	...	...	..	...	...	...	1	
...	...	...	1	...	...	...	...	...	...	...	...	1	Amputation of forearm; pyæmia.
...	1	...	...	...	...	...	...	...	1	...	...	...	
1	...	2	...	...	2	...	...	...	5	...	...	...	1 removed.
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	...	1	...	...	...	...	...	...	...	...	1	...	
4	9	6	2	1	...	...	...	...	19	3	...	...	
3	1	1	...	...	...	...	...	...	5	...	...	...	
									128	130	29	1	
									827	425	99	109	
									2437				

TABLE III.—

SURGICAL OPERATIONS.	Sex.		Age.							
	M.	F.	-5	-10	-20	-30	-40	-50	-60	+60
REMOVAL OF TUMOURS AND NEW GROWTHS.										
Amputation of breast	...	8	...	...	...	...	2	4	1	1
Ditto with removal of glands	...	21	...	...	...	...	3	11	3	4
Removal of recurrent growth	...	4	...	...	...	...	...	3	...	1
Carcinoma of jaw	1	...	...	...	...	...	...	...	...	1
„ „ recurrent	1	...	...	...	...	...	...	...	...	1
„ of abdominal wall	...	1	...	...	...	...	...	...	1	...
„ of scalp	1	...	...	...	...	...	...	...	...	1
„ of palate	...	1	...	...	...	...	1	...	...	...
Epithelioma of nose	2	...	...	...	...	2	...	...	...	...
„ cheek	1	1	...	...	...	...	...	...	1	1
„ lip	8	...	...	...	...	...	1	2	1	4
„ tongue	8	1	...	...	...	...	1	3	3	2
„ „ recurrent	3	...	...	...	...	...	...	1	2	...
„ upper jaw	...	1	...	...	...	...	...	...	...	1
„ vulva, recurrent	...	1	...	...	...	...	...	...	...	1
„ vagina	...	1	...	...	...	...	1	...	...	...
Rodent ulcer	2	2	...	...	...	...	...	1	1	2
Sarcoma of neck	2	2	...	...	...	1	2	...	...	1
„ axilla, recurrent	1	...	...	...	...	1	...	...	...	...
„ subclavic region	...	1	...	...	...	1	...	...	...	...
„ lower jaw	1	...	...	...	...	...	1	...	...	...
„ pelvis	1	...	...	...	...	...	...	1	...	...
„ skin	1	...	...	...	...	1	...	...	...	...
Papilloma of nose	...	1	...	...	...	...	...	...	...	1
„ anus, &c.	2	1	...	...	1	...	...	1	...	1
Polypus of rectum	1	...	...	1	...	...	...	...	...	...
„ naso-pharynx	1	...	...	...	1	...	...	...	...	...
Adenoid vegetations of pharynx	1	...	...	...	1	...	...	...	...	...
Villous tumour of bladder	1	...	...	...	...	...	...	1	...	...
Excision of rectum	...	2	...	...	...	...	1	1	...	...
Parotid tumours	2	2	...	...	...	1	1	2	...	...
Vegetations on vulva	...	1	...	...	...	1	...	...	...	...
Polypus uteri	...	1	...	...	...	...	...	1	...	...
For removal of keloid	...	1	...	...	1	...	...	...	...	...
„ adenoma of palate	...	1	...	...	...	...	1	...	...	...
„ „ breast	...	6	...	...	...	...	2	2	2	...
„ „ rectum	...	1	...	...	...	...	...	1	...	...
„ angioma	1	1	...	...	...	1	...	1	...	...
„ nævus	4	3	4	...	3	...	...	...	...	...
„ „ degenerated	2	1	...	1	1	1	...	...	...	...
Electrolysis of nævus	1	1	1	...	1	...	...	...	...	...
For removal of neuroma	1	1	...	...	1	...	1	...	...	..
„ exostosis	1	3	...	1	2	1	...	...	...	...
„ fibroma	4	3	...	...	2	2	1	1	...	1
„ fibro-myoma	...	2	...	...	...	...	...	2	...	...

Surgical Operations.

Duration of residence after operation.									Result.				Remarks.
Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Mts. +12	C.	R.	U.	D.	
...	2	5	1	...	...	...	...	...	8	...	...	...	1 chronic inflammatory, 1 suppurating.
...	4	7	9	1	...	...	...	...	20	...	...	1	
...	...	1	2	1	...	...	...	...	3	1	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	} Same case.
...	...	...	...	1	...	...	...	...	...	1	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	...	...	1	...	...	...	...	...	...	1	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	...	1	1	...	...	...	...	...	1	...	1	...	1 recurrent.
1	1	...	...	...	...	...	...	...	2	. .	...	...	1 developing in a cicatrix.
...	7	1	...	...	...	...	...	...	8	...	...	...	
1	4	4	...	...	...	...	...	...	7	...	...	2	3 with division of lower jaw.
...	1	2	...	...	...	...	...	...	2	1	...	..	
...	...	...	1	...	...	...	...	...	1	...	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	...	2	2	...	...	...	...	...	3	...	...	1	1 recurrent.
...	...	2	2	...	...	...	...	...	3	1	...	...	1 recurrent.
1	...	...	...	...	...	...	...	...	...	...	..	1	
...	1	...	...	...	...	...	...	...	1	...	...	...	
...	...	...	...	1	...	...	...	...	1	...	...	...	
1	...	...	...	...	...	...	...	...	...	...	...	1	Operated on for hæmorrhoids.
...	1	...	...	...	...	...	...	...	1	...	...	...	Melanotic.
...	...	1	...	...	...	...	...	...	1	...	...	...	Doubtful epithelioma.
...	1	1	1	...	...	...	...	...	3	...	...	...	1 of anus, 1 of thigh, 1 of scalp.
...	1	...	...	...	...	...	...	...	1	...	...	...	
...	...	...	...	1	...	...	...	...	...	1	...	...	Two operations; left at own request.
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	...	...	1	...	...	...	...	...	...	1	...	...	Suprapubic cystotomy, second operation.
...	...	...	2	...	...	...	...	...	2	...	...	...	
...	3	1	...	...	...	...	...	...	4	...	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	
1	...	...	...	...	...	...	...	...	1	...	...	...	
...	1	4	1	...	...	...	...	...	6	...	...	...	
...	...	...	1	...	...	...	...	...	...	1	...	...	
...	1	...	1	...	...	...	...	...	2	...	...	...	1 of scalp, 1 of thigh.
...	2	5	...	...	...	...	...	...	7	...	...	...	
1	2	...	...	...	...	...	...	...	3	...	...	...	1 fatty, 2 cystic.
...	1	1	...	...	...	...	...	...	1	..	...	1	Fatal case in neck; œdema of glottis, pneumonia.
...	1	1	...	...	...	...	...	...	2	...	...	...	1 median, 1 bulbous digital nerve.
1	2	...	1	...	...	...	...	...	4	...	...	...	1 of tibia, 3 subungual.
1	2	3	1	...	...	...	...	...	5	1	...	1	1 bursal, 1 epulis, 1 base of skull, 1 of tendon sheath.
...	...	2	...	...	...	...	...	...	1	1	...	...	Both partial; 1 by abdominal section.

TABLE III.—

SURGICAL OPERATIONS.	Sex.		Age.							
	M.	F.	-5	-10	-20	-30	-40	-50	-60	+60
REMOVAL OF TUMOURS AND NEW GROWTHS —*continued.*										
For removal of myxo-fibroma	1	2	...	...	1	1	1	...	...	...
„ lipoma	3	5	...	...	2	1	2	1	2	...
„ ovarian tumour	...	15	...	...	...	5	6	1	3	...
„ post-peritoneal cyst	...	1	...	...	...	...	...	...	1	...
„ hydrosalpynx	...	1	...	...	1	...	...	...	...	...
„ serous cyst of breast	...	2	...	...	...	...	...	2	...	...
„ ganglion	...	2	...	...	...	...	2	...	...	...
„ enlarged bursa	...	1	...	...	...	1	...	...	...	...
„ dermoid cyst	...	1	...	...	...	...	1	...	...	...
„ sebaceous cyst	3	1	...	...	...	2	...	...	...	2
„ hydatid cyst	...	1	...	...	...	1	...	...	...	...
CIRCULATORY SYSTEM.										
Ligation of brachial	1	...	...	...	...	...	...	...	1	...
„ ulnar	2	...	...	...	...	1	...	...	1	...
„ radial	2	1	...	...	1	1	1	...	...	...
„ interosseous	1	...	...	...	...	...	...	...	1	...
„ sciatic	1	...	...	...	1	...	...	...	...	...
„ common femoral	1	...	...	...	1	...	...	...	...	...
„ superficial femoral	1	...	...	...	...	1	...	...	...	...
„ popliteal vein	1	...	...	...	...	...	1	...	...	...
Galvano-puncture for brachial aneurism	...	1	...	...	...	...	...	...	1	...
Wet cupping	...	2	...	...	...	1	1	...	...	...
Excision of varicose vein	7	4	...	...	...	4	4	2	1	...
„ varicocele	16	...	...	...	11	5	...	...	...	...
„ hæmorrhoids	12	8	...	...	...	4	8	5	3	...
Ligature of varicocele	1	...	...	...	...	1	...	...	...	...
RESPIRATORY SYSTEM.										
Tracheotomy	6	2	4	1	...	1	...	1	...	1
Plastic for ærial fistula	1	...	...	...	...	...	...	1	...	...
Incision of empyema	1	...	1	...	...	...	...	...	...	...
Aspiration of empyema	1	...	1	...	...	...	...	...	...	...
Resection of ribs for empyema	1	1	...	...	...	2	...	...	...	...
DUCTLESS GLANDS.										
Partial removal of thyroid	...	3	...	...	1	1	1	...	...	...
Division of isthmus	1	1	...	...	...	1	1	...	...	...
Incision of cysts	1	2	...	...	...	1	1	1	...	...

continued.

Duration of residence after operation.									Result.				Remarks.
Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Mts. +12	C.	R.	U.	D.	
...	1	1	1	...	...	...	...	...	3	...	...	...	1 of thumb, 1 of upper jaw, 1 of sciatic nerve.
...	3	4	1	...	...	...	...	...	8	...	...	...	
1	1	7	3	3	...	...	...	...	13	...	...	2	1 dermoid, 1 fibroma, 1 cyst of broad ligament.
1	...	...	...	...	...	...	...	...	..	...	...	1	Abdominal section.
...	...	...	1	...	...	...	...	...	1	...	...	...	Abdominal section.
...	...	1	1	...	...	...	...	...	2	...	...	...	Both breasts removed.
...	...	2	...	...	...	...	...	...	2	...	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	Over sternum.
1	2	1	...	...	...	...	...	...	4	...	...	...	2 suppurating.
...	...	1	...	...	...	...	...	...	1	...	...	...	In buttock.
...	...	1	...	...	...	...	...	...	1	...	...	...	For secondary hæmorrhage, after ligature of ulnar and interosseous.
...	...	1	1	...	...	...	...	...	1	1	..	...	For wound.
...	2	1	...	...	...	...	...	...	3	...	...	...	For wound.
...	...	...	1	...	...	...	...	...	...	1	...	...	For wound.
...	1	...	...	...	...	...	...	...	1	...	...	...	For secondary hæmorrhage, wound of buttock.
1	...	...	...	...	...	...	...	...	..	...	..	1	Fracture of thigh, rupture of popliteal artery.
...	...	...	1	...	...	...	...	...	1	...	...	...	Popliteal aneurism; coats not divided by ligature.
...	...	...	1	...	...	...	...	...	1	...	...	...	Punctured wound of ham.
...	...	1	...	...	...	...	...	...	1	...	...	...	After failure of Esmarch's bandage.
...	1	1	...	...	...	...	...	...	2	...	...	...	
...	...	6	5	...	...	...	...	...	11	..	...	...	
...	1	9	6	...	...	...	...	...	16	...	...	...	
...	11	8	1	...	...	...	...	...	18	1	...	1	1 case of Addison's disease, fatal; 5 done with clamp and cautery, 15 with ligature.
...	...	1	...	...	...	...	...	...	1	...	...	...	
4	1	3	...	...	...	...	...	...	1	2	...	5	3 acute laryngitis, 1 cellulitis of neck, 1 retro-pharyngeal abscess, 1 epithelioma of larynx, 2 œdema (see p. 350).
...	...	1	...	...	...	...	...	...	...	1	...	...	Tracheal, after self-inflicted wound.
...	...	...	1	...	...	...	...	...	1	...	...	...	
...	...	1	...	...	...	...	...	...	...	1	...	...	
...	...	1	...	1	...	...	...	...	...	1	...	1	1 Estlander's operation; six ribs excised. Fatal case died of cerebral abscess.
...	...	2	1	...	...	...	...	...	...	3	...	...	
1	...	...	1	...	...	...	...	...	1	...	...	1	
...	1	...	1	1	...	...	...	...	...	3	...	...	1 suppurating.

TABLE III.—

SURGICAL OPERATIONS.	Sex.		Age.							
	M.	F.	-5	-10	-20	-30	-40	-50	-60	+60
LYMPHATIC SYSTEM.										
Removal of glands	3	2	1	...	1	2	1	...	...	...
NERVOUS SYSTEM.										
Nerve stretching	1	1	...	...	1	...	1	...	...	...
Resection of nerve	...	3	...	...	1	...	1	...	1	...
„ Meckel's ganglion	1	...	...	...	...	...	...	...	...	1
DIGESTIVE SYSTEM.										
Œsophagotomy	...	1	...	...	...	...	1	...	..	...
Gastrostomy	1	...	...	...	...	...	...	...	1	...
Enterotomy	1	1	...	...	...	...	...	...	2	...
Colotomy	4	1	...	....	1	...	...	1	1	2
Herniotomy, inguinal	5	1	...	...	1	1	...	2	1	1
„ femoral	...	4	...	...	...	...	...	...	2	2
Radical cure—inguinal hernia	9	...	2	1	2	3	...	1	...	...
„ strangulated hernia	13	1	3	...	...	3	1	1	2	4
„ „ femoral	...	8	...	1	...	...	...	1	4	2
„ „ umbilical	...	2	...	...	...	...	1	1	...	...
„ femoral hernia	...	1	...	...	...	...	1	...	...	...
„ umbilical hernia	...	1	...	...	...	...	1	...	...	...
Extra-peritoneal femoral herniotomy	...	1	...	...	...	...	...	...	...	1
Intestinal obstruction	1	2	...	...	...	2	...	...	1	...
For perforating ulcer of duodenum	1	...	...	...	...	...	1	...	...	...
Rectotomy	...	1	...	...	...	...	1	...	...	...
Prolapsus ani	...	1	...	...	1	...	...	...	...	...
Fistula in ano	29	4	...	...	1	9	11	6	6	...
Fissure of anus	...	3	...	...	...	...	2	1	...	...
Ulcer of rectum	1	1	...	...	...	...	2	...	...	...
Forcible dilatation of stricture	1	...	...	...	...	...	...	...	1	...
Suture of wounded gut	1	...	...	...	...	1	...	...	...	...
Imperforate anus	2	1	3	...	...	...	...	...	...	...
GENITO-URINARY SYSTEM.										
Circumcision	16	...	1	3	8	3	...	...	...	1
Hydrocele of cord	2	...	...	...	2	...	...	...	...	...
„ tunica vaginalis	5	...	2	...	...	...	...	1	1	1
Injection of tunica vaginalis	4	...	...	...	...	1	2	1	...	...
Simple tapping of tunica vaginalis	1	...	...	...	...	...	1	...	...	...
Castration	3	...	1	...	...	...	1	1	...	...
Oöphorectomy	...	1	...	...	...	...	1	...	...	...
Urethral caruncle	...	1	...	...	...	...	...	...	...	1
Amputation of labia majora	...	1	...	...	...	1	...	...	...	...

continued.

Duration of residence after operation.									Result.				Remarks.
s. –4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Mts +12	C.	R.	U.	D.	
..	2	2	1	...	...	...	...	...	5	...	...	...	1 suppurating adenitis, 4 tubercular.
.	...	2	...	...	...	...	...	...	1	1	...	...	Median for spastic contraction; sciatic for epilepsy (see 'Cin. Soc. Trans.,' vol. xx, p. 143).
..	...	3	...	...	...	...	...	...	3	...	...	...	2 median, 1 ulnar.
.	...	...	...	1	...	...	...	...	1	...	...	...	Trigeminal neuralgia.
..	...	1	...	...	...	...	...	...	1	...	...	...	False teeth in gullet.
..	1	...	...	...	...	...	...	...	...	...	...	1	Malignant disease of œsophagus.
2	...	...	...	...	...	...	...	...	...	...	...	2	Malignant disease of sigmoid flexure; inguinal hernia, abdominal section.
1	1	1	2	...	...	...	...	...	...	3	...	2	5 malignant disease of rectum.
3	1	1	1	...	...	..	...	...	2	...	...	4	
..	2	1	1	...	...	...	...	...	2	...	...	2	1 artificial anus established.
.	...	2	5	2	...	...	...	...	9	...	...	...	
3	2	5	3	...	...	...	...	...	9	...	...	5	1 death from diphtheria.
1	2	4	1	...	...	...	...	...	5	...	..	3	
..	...	2	...	...	...	...	...	...	2	...	...	...	
..	...	1	...	...	...	...	...	...	1	...	...	...	
.	...	1	...	...	...	...	...	...	...	...	...	1	
1	...	...	...	...	...	...	...	...	...	...	.	1	
2	1	...	...	...	...	...	...	...	...	...	..	3	3 abdominal sections; 2 internal strangulation, 1 intussusception.
1	...	...	...	...	...	...	...	...	...	...	.	1	Abdominal section.
.	...	1	...	...	...	...	...	...	...	1	...	...	Inflammatory stricture.
.	...	1	...	...	...	...	.	...	1	...	...	...	Ligature and cautery.
3	11	11	6	2	...	...	...	...	29	4	...	...	
..	1	2	...	...	...	...	...	...	3	...	...	...	1 with ulcer of rectum; incision.
.	1	1	...	...	...	...	...	...	1	1	...	...	Forcible stretching; 1 with fissure.
..	...	1	...	...	...	...	...	...	...	1	...	...	
1	...	...	...	...	...	...	...	...	...	...	...	1	Bullet wound.
.	3	...	...	...	...	...	...	...	..	...	...	3	2 perineal; 1 Littré's operation.
3	6	7	. .	...	...	...	...	...	15	1	...	...	9 congenital phimosis, 1 with warts, 4 with chancre, 1 slit, 1 for paraphimosis.
.	...	2	...	...	...	...	...	...	2	...	...	...	Radical cure by incision.
.	...	3	2	...	...	...	...	...	5	...	...	...	Suture of pillars of external ring in 1; 1 suppurating.
.	3	1	...	...	...	...	...	...	3	1	...	...	2 with tincture of iodine, 1 with carbolic acid.
1	...	...	...	...	...	...	...	...	1	...	...	...	With acute orchitis.
.	...	1	2	...	...	...	...	...	2	...	...	1	2 sarcoma, 1 gumma.
.	...	...	...	...	...	...	...	...	1	...	...	...	
.	1	...	...	...	...	...	...	...	1	...	...	...	
.	...	1	...	...	...	...	...	...	1	...	...	...	Hypertrophy.

TABLE III.—

SURGICAL OPERATIONS.	Sex.		Age.							
	M.	F.	-5	-10	-20	-30	-40	-50	-60	+6
GENITO-URINARY SYSTEM—*continued.*										
Pyonephrosis	1	2	...	...	...	2	...	1	...	..
Nephrectomy	1	1	...	...	...	..	...	...	2	...
Exploration of kidney	2	...	...	...	1	1	...	...	...	..
„ bladder	2	...	...	...	...	1	...	...	1	..
Internal urethrotomy	5	...	...	...	...	2	2	1	...	..
Division of meatus	1	...	...	...	...	...	...	...	1	..
Perineal puncture	5	...	...	...	...	...	2	2	1	..
Perineal section	8	...	...	...	1	3	...	2	2	..
Urethral calculus	2	...	1	...	...	...	...	1	...	..
„ „ by dilatation	...	1	...	...	...	...	...	...	1	..
Lithotomy, lateral	2	...	...	1	...	...	1	...	...	..
„ supra-pubic	3	...	1	...	...	...	...	...	...	
Lithotrity	4	...	...	...	...	1	...	...	1	
Suture of ruptured bladder	2	...	...	...	...	...	2		...	..
Labial fistula	...	2	...	...	1	1	...	...	...	..
Hypospadias	1	...	...	1	..	...	...	...	...	..
Extroversion of bladder	1	...	...	1	...	...	...	...	...	..
LOCOMOTORY SYSTEM.										
Removal of necrosed bone from—										
Upper jaw	...	2	...	...	...	...	...	1	1	..
Lower jaw	3	2	...	2	1	2	...	...	...	..
Radius	1	...	...	...	...	1	...	...	...	..
Pelvis	1	...	...	...	...	1	...	...	...	..
Femur	8	4	...	1	5	3	1	1	...	
Tibia	10	3	1	3	4	2	2	1	...	..
Tarsus	3	...	...	...	2	...	1	...	..	..
Metatarsus	...	1	...	...	...	1	...	...	...	..
Nasal bones	...	1	...	...	1	...	...	...	...	..
Scraping for caries of—										
Nasal bones	1	...	...	...	1	...	...	...	...	..
Mastoid cells	1	...	...	...	...	...	...	1	...	..
Ribs	1	1	...	...	...	...	1	1	...	..
Tibia	2	1	2	1	...	...	...	...	...	..
Tarsus	1	...	1	...	...	...	...	...	...	..
Removal of carious teeth	...	2	...	...	2	...	...	...	...	..
Trephining mastoid cells	2	...	...	...	1	1	...	...	...	..
Excision of joints, &c.—										
Shoulder	1	...	...	...	...	1	...	...	...	..
Elbow	5	3	2	...	3	...	2	1	...	..
Hip	11	10	6	10	5	...	...	...	...	..
Knee	...	2	...	...	...	1	...	1	...	..
Os calcis	1	...	...	...	1	...	...	...	...	..
Metarso-phalangeal	1	1	...	...	1	1	...	...	...	..
Suture of flail elbow following excision	1	...	...	...	...	...	1	...	...	..
Excision, metacarpo-phalangeal joint	1	...	...	...	1	...	...	...	...	..

continued.

Duration of residence after operation.									Result.				Remarks.
s. –4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts 9–12	Mts. +12	C.	R.	U.	D.	
..	...	...	3	...	...	...	...	...	...	2	...	1	
2	...	...	...	...	...	...	.	...	...	...	...	2	1 calculus, 1 new growth.
..	...	...	1	1	...	...	...	...	...	2	...	...	1 lumbar, 1 abdominal. ? stone.
..	...	2	...	...	...	...	...	...	...	1	...	1	
..	1	3	1	...	...	...	...	...	4	...	...	1	
..	1	...	...	...	...	...	...	...	1	...	...	...	
1	...	2	1	...	1	...	...	...	4	.	...	1	3 for stricture, 1 for contusion and extravasation.
..	1	...	3	4	...	...	...	...	6	1	...	1	Rupture of urethra 3, stricture and fistula 2, extravasation 3.
..	...	1	1	...	. .	...	...	...	2	...	...	. .	
..	...	...	1	.	...	...	...	...	1	...	.	...	
..	...	...	1	1	...	...	...	...	2	...	...	...	
..	...	1	1	1	...	...	...	...	3	...	...	...	
1	...	...	3	...	...	...	...	...	3	...	...	1	
..	...	1	1	...	...	...	...	...	2	...	...	...	'Lancet,' vol. ii, 1886, p. 1113, and Special [Summary.
1	1	...	...	...	...	...	...	...	1	1	...	...	
1	...	...	...	...	...	...	...	...	1	...	...	..	Sinus continued into urethra.
..	...	...	...	...	...	...	1	..	1	...	...	...	
1	...	...	1	...	...	...	...	...	2	...	.	...	
1	3	...	...	1	...	...	...	...	3	2	...	...	
..	...	1	...	...	...	...	...	...	1	...	...	...	
..	...	1	...	...	...	...	...	...	...	1	...	...	
..	...	7	2	3	...	...	...	...	5	7	...	...	1 exploratory only.
..	...	...	6	4	3	...	...	...	8	5	...	...	
..	1	...	...	1	1	...	...	...	1	1	1	...	1 followed by Syme's amputation, 2 os calcis.
..	...	...	1	...	...	...	.	...	1	...	...	. .	
..	1	...	...	...	...	...	...	...	1	...	...	...	
..	...	1	...	...	...	...	...	...	1	...	...	...	
..	...	1	...	...	...	...	...	...	...	1	...	...	
..	...	...	1	1	...	...	...	...	...	2	...	...	
..	...	1	2	...	...	...	...	...	1	2	...	...	
..	...	...	...	...	1	...	...	...	...	...	1	...	Left at own request.
1	1	...	.	...	...	...	...	...	2	...	...	...	
..	...	2	...	...	...	...	...	...	...	2	...	...	
..	...	...	1	...	...	...	...	...	...	1	...	...	
..	...	...	4	3	1	...	...	...	5	3	...	...	2 primary, 1 removal of olecranon; both partial.
..	1	2	1	13	1	1	1	1	9	8	1	3	
1	...	...	...	...	1	..	...	...	1	...	...	1	
..	...	...	...	1	...	...	...	...	1	...	..	...	
..	...	2	...	...	...	...	...	...	2	...	...	...	For hammer-toe.
..	...	...	...	1	...	...	...	...	1	...	...	...	
..	...	...	1	...	...	...	...	...	1	...	...	...	Old dislocation of thumb.

TABLE III.—

SURGICAL OPERATIONS.	Sex.		Age.							
	M.	F.	-5	-10	-20	-30	-40	-50	-60	+60
LOCOMOTORY SYSTEM—*continued.*										
Arthrotomy, elbow	...	1	...	...	1	...	...	...	...	...
„ ankle	1	...	...	...	...	...	1	...	...	...
Incision of elbow	2	1	...	...	...	...	...	...	1	2
„ sacro-iliac joint	...	1	...	...	1	...	...	...	...	...
„ hip	1	2	...	1	1	1	...	...	...	...
„ knee	4	2	...	2	1	2	1	...	...	...
Trephining of great trochanter	...	1	...	...	1	...	...	...	...	...
Removal of loose body from knee	1	...	...	...	...	1	...	...	...	...
Aspiration of knee	3	...	...	2	1	...	...	...	...	...
Forcible movement of knee	4	2	...	1	3	1	1	...	...	..
Osteotomy of femur	7	8	1	3	9	1	...	1	...	...
„ tibia	3	...	...	1	1	...	...	...	1	...
„ inferior maxilla	...	1	...	...	...	1	...	...	...	...
Suture of patella	2	...	...	...	1	...	...	1	...	...
„ lower jaw	1	...	...	...	...	...	1	...	...	...
Primary amputation of—										
Shoulder	1	...	...	1	...	...	...	...	...	...
Arm	4	...	...	...	2	1	...	...	...	1
Forearm	1	...	...	...	...	1	...	...	...	...
Hand	2	...	...	...	1	...	...	...	1	...
Fingers	10	...	...	1	4	...	2	2	1	...
Thigh	4	...	...	...	1	1	1	1	...	...
Leg	2	...	...	...	1	1	...	...	...	...
Toes	1	...	...	1	...	...	...	...	...	...
Secondary amputation of—										
Arm	...	1	...	...	...	...	1	...	...	...
Forearm	1	...	...	...	...	...	...	1	...	...
Thigh	1	...	...	...	...	...	...	...	1	...
Great toe	2	...	...	...	1	...	...	1	...	...
Amputation for disease of—										
Shoulder	...	1	...	...	...	...	...	...	1	...
Forearm	...	2	...	...	1	...	...	...	...	1
Fingers	2	3	1	...	1	1	...	1	1	...
Hip-joint	...	1	...	...	1	...	...	...	...	...
Thigh	13	5	3	4	6	2	1	2	...	...
Through knee	...	1	...	...	1	...	...	...	...	...
Leg	4	2	1	1	...	...	1	2	1	...
Foot	5	1	...	1	3	2	...	...	...	...
Toes	4	2	...	...	...	2	1	...	1	2

continued.

Duration of residence after operation.									Result.				Remarks.
ys. –4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts 4–6	Mts 6–9	Mts. 9–12	Mts. +12	C	R.	U.	D.	
.	...	...	1	...	...	...	...	...	...	1	...	...	Old excision.
.	...	...	...	1	...	...	...	...	...	1	...	...	
.	1	1	1	..	...	...	...	...	...	3	...	...	
.	...	...	1	...	...	...	...	...	...	1	...	...	
.	...	1	...	2	...	...	...	...	...	1	1	1	
.	...	...	1	4	1	...	...	...	5	1	...	...	4 suppurating after wound, 1 puerperal.
.	...	...	...	...	1	...	...	...	1	...	...	...	
.	...	...	1	...	...	...	...	...	1	...	...	...	Direct incision.
.	1	2	...	...	...	...	...	...	1	2	...	...	2 same case; 2 admissions.
.	...	6	.	...	...	...	...	...	5	1	...	...	
.	...	...	3	11	1	...	...	...	14	...	...	1	3 subtrochanteric, 1 open and fatal, 12 supracondyloid, 8 of which were double = 23 divisions.
.	...	...	1	2	...	...	...	...	3	...	...	...	2 rickety curves; 1 fibula also, old fracture.
.	...	...	1	...	...	...	...	...	1	...	...	...	Wedge-shaped, for anchylosis.
.	...	...	...	1	1	...	...	...	2	...	.	...	1 compound fracture, 1 ununited.
.	...	1	...	...	...	...	...	...	1	...	.	...	
.	...	...	1	...	...	...	...	...	1	...	...	...	
.	...	2	2	. .	...	...	...	...	4	...	...	...	
.	...	1	...	...	...	...	...	...	1	...	...	...	
1	...	...	1	...	...	...	...	...	2	...	...	...	
5	3	2	...	...	...	...	...	...	10	...	...	...	
.	...	1	...	1	2	...	...	...	4	...	...	...	Necrosis in 1; 1 Gritti, sloughing of post-flap, but good stump.
.	...	...	1	1	...	...	...	...	2	...	...	...	
.	...	1	...	...	...	...	...	...	1	...	...	...	
.	1	...	...	...	...	...	...	...	1	...	...	...	Gangrene after fracture of radius and ulna.
.	...	1	...	...	...	...	...	...	...	...	...	1	Wound of wrist; pyæmia.
1	...	...	...	...	...	...	...	...	...	...	...	1	Compound fracture, both femora.
.	...	2	...	...	...	...	...	...	2	...	...	...	
.	...	1	...	...	...	...	...	...	1	...	...	...	Old ulceration of arm; epilepsy.
.	...	1	1	...	...	...	...	...	2	...	...	...	1 for deformity, 1 for suppurative chronic tenosynovitis.
1	3	1	...	...	...	...	...	...	5	...	...	...	2 contracted fingers, 1 bifid thumb.
.	1	...	...	...	...	...	...	...	...	...	...	1	Jordan's amputation; old hip excision.
.	...	5	8	5	..	...	...	...	16	1	...	1	New growth 4; pyæmia 2, 1 fatal; knee disease 6, acute bone disease 2, suppurating knee 1, necrosis of femur 1.
.	...	...	...	1	...	...	...	...	1	...	...	...	
.	...	...	5	1	...	...	...	...	6	...	...	...	Disease of foot 1, septicæmia 1, ankle disease 1, ulcer 1, gangrene 1, deformity 1.
.	...	...	3	3	...	...	...	...	6	...	...	...	1 club-foot with ulcer, others tarsal disease.
.	3	2	1	...	...	...	...	...	5	...	...	1	Fatal case; diabetic gangrene. 1 hammer-toe.

TABLE III.—

SURGICAL OPERATIONS.	Sex.		Age.							
	M.	F.	-5	-10	-20	-30	-40	-50	-60	+60
LOCOMOTORY SYSTEM—*continued.*										
Reduction of dislocation—										
Acromial end of clavicle	2	...	...	...	...	1	...	...	1	...
Of shoulder	5	7	...	...	1	1	...	1	3	6
Carpo-metacarpal	...	1	...	...	...	...	...	1	...	...
Metacarpo-phalangeal	2	...	...	1	...	...	...	...	...	1
Of hip	3	...	...	...	1	...	1	1	...	...
Metatarso-phalangeal	1	...	...	...	1	...	...	...	...	...
Tenotomy for club-foot	9	1	1	3	4	1	1	...	...	...
„ hammer-toe	1	1	...	...	2	...	...	...	...	...
„ torticollis	...	1	...	1	...	...	...	...	...	...
REPARATIVE OPERATIONS.										
Removal of snout harelip	2	1	3	...	...	...	...	...	...	...
Single harelip	3	1	4	...	...	...	...	...	...	...
Cleft palate	4	5	1	3	4	1	...	...	...	...
Rhinoplasty	1	...	...	...	...	...	1	...	...	...
Cheiloplasty	...	1	...	...	...	1	...	...	...	...
Web in axilla	1	...	...	...	...	...	1	...	...	...
MISCELLANEOUS.										
Trephining skull	5	1	1	...	2	2	1	...	...	...
Excision of eyeball	10	1	...	...	3	2	4	2	...	...
Removal of bullet	1	...	...	...	...	1	...	...	...	...
Exploration for bullet	1	...	...	...	1	...	...	...	...	...
Incision of spinal abscess	5	1	...	1	2	1	2	...	...	...
„ compound ganglion	1	2	...	...	...	...	1	...	...	2
Scraping lupus	4	3	...	...	4	1	1	...	1	...
For conical stump of leg	1	...	...	1	...	...	...	...	...	...
Forcible replacement of nasal septum	2	...	...	...	2	...	...	...	...	...
Avulsion of great toe-nail	2	...	...	...	1	1	...	...	...	...
Removal of suture from jaw	...	1	...	...	...	1	...	...	...	...
	472	283								
	755									
Tracheotomies done in medical wards, not included in above Table	24	22	41	5	...	...	...	...	...	...

continued.

Duration of residence after operation.									Result.				Remarks.
s. –4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Mts. +12	C.	R.	U.	D.	
1	...	1	...		...	...	...	...	1	1	...	...	
1	7	3	...	1	...	...	...	...	9	3	...	...	1 with compound fracture of humerus, 1 with fracture of femur, 1 with fibula; 8 old, 3 unreduced.
..	1	...	...	...	...	...	...	...	1	...	...	...	Thumb.
2	...	...	...	...	...	...	...	...	2	...	...	...	1 thumb, 1 index finger.
1	1	1	...	...	...	...	...	...	2	...	...	1	All dorsal; fatal case with fracture of pelvis.
1	...	...	...	...	...	...	...	...	1	...	...	...	Great toe.
..	2	4	2	1	1	...	...	...	3	7	...	...	Equinus 2, equino-varus 4, valgus 3, claw-foot 1.
..	...	2	...	...	...	...	...	...	2	...	...	...	
..	...	...	1	...	...	...	...	...	1	...	...	...	
..	1	1	1	...	...	...	...	...	2	...	...	1	
1	1	1	...	1	...	...	...	...	4	...	...	...	
..	2	5	2	...	...	...	...	...	7	1	1	...	1 transferred with diphtheria.
..	1	..	...	...	...	...	...	...	1	...	...	...	
..	...	...	...	1	...	...	...	...	1	...	...	...	
..	...	...	...	...	1	...	..	...	1	...	...	...	
..	...	1	4	1	...	...	...	...	5	...	1	...	1 transferred with diphtheria.
3	7	...	1	...	...	...	...	...	11	...	...	...	Wound 9, rupture 1, shot in ball 1.
..	1	...	...	...	...	...	...	...	1	...	...	...	In back after penetrating chest from before.
1	...	...	...	...	...	...	...	..	...	...	...	1	Exploration in loin; bullet in belly.
..	...	...	1	2	...	1	1	1	...	3	...	3	In 1 direct incision and sequestrotomy.
1	...	...	2	...	...	...	...	...	2	1	...	...	
1	...	2	3	1	...	...	...	...	4	3	...	...	
..	...	1	...	...	...	...	...	...	1	...	...	...	
..	1	1	...	...	...	...	...	...	1	1	...	...	
1	1	...	...	...	...	...	...	...	2	...	...	...	
..	...	1	...	...	...	...	...	...	1	...	...	...	Old operation for epithelioma of tongue.
									562	111	7	75	
									755				
29	9	3	5	...	...	...	...	...	9	...	...	37	All for diphtheria.

SUMMARY OF DISEASES.

GENERAL DISEASES.

ERYSIPELAS (arising in the hospital).

See Special Table.

Erysipelas (admitted as such).—Males 39, females 28. C. 61, R. 1, D. 5. Cutaneous 26; cellulo-cutaneous 12; cellular 27; unreported 2. *Causes.*—Wounds 11; carious tooth 1; abscesses 6; ulcers 10; blisters 3; blows 6; fracture of fibula 1. Affecting head and face 12; neck 4; trunk 2; scrotum 1; upper extremity 14; lower extremity 30; unreported 4. *Complications.*—Abscess of thigh 3; submaxillary abscess 1; lymphangitis 2; œdema of tongue 1; œdema of glottis 1; suppuration of wrist-joint 1; suppuration of bursa patella 1; meningitis 1; thrombosis of veins of leg 1; septicæmia 2 (1 fatal); renal disease 1; rodent ulcer of scalp 1; tertiary syphilis 1; smallpox 1; elephantiasis 1; hydronephrosis 1. *Treatment.*—Internal: usually perchloride of iron in large doses, a few cases quinine. Locally: warm lead, or chlorinated soda lotions and linseed poultices; incisions in 31 cases; tracheotomy 1.

Fatal.

Male, æt. 26. Sore on instep, starting-point of erysipelatous inflammation 5 days before admission, when there was phlegmonous inflammation of whole leg and lower one third of thigh. Numerous incisions made, treated with iron and stimulants. Died on fifth day. Temperature never above 102·4°. P.M.—Suppuration in intermuscular planes only; sloughing of skin; veins normal; lymphangitis as far as groin; vessels swollen and soft; lining membrane of blood-vessels deeply stained.

Male, æt. 45. No evident cause. Cellulitis of leg, delirium, constant high temperature. Treated with iron and stimulants; leg incised. Died on thirteenth day. No P.M.

Female, æt. 28. Admitted with cellulitis of neck and œdema of glottis. One incision had been made when tracheotomy had to be done, but without success. Patient under chloroform. P.M.—Tissues of neck on right side infiltrated with

pus, especially around larynx and pharynx; the cellulitis was limited by the deep fascia; congestion and œdema of glottis and uvula; double hæmatosalpinx; hæmorrhagic cyst in right ovary; chronic perimetritis.

Female, æt. 32. Admitted with cutaneous erysipelas, and very high temperature (106°) following a severe mental shock. Treated with quinine, iron, and stimulants, but rapidly got worse, temperature varying between 103° to 105·2°, and reaching 108° before death on second day. No P.M.

Female, æt. 54. Cellulitis of left orbit secondary to an alveolar abscess. Treated with iron and free incisions, developed symptoms of meningitis, and died on eleventh day. P.M.—Cavernous sinus normal; basal meningitis starting from roof of orbit, most marked in interpeduncular space; abscess of left frontal lobe; cystic hydronephrosis, double, cause not ascertainable.

Pyæmia.—(See Special Table, p. 406.)

Tetanus.—Males 2. D. 2.

Male, æt. 25. Wound of foot by prong of pitchfork. On admission stiffness of neck. Second day trismus and opisthotonos. Temperature rose to 101° on third day, and chloroform was administered during spasms. Died on third day, temperature only reaching 103°. P.M.—Branch of musculo-cutaneous nerve near wound apparently normal. Organs fairly healthy.

Male, æt. 32. Contused and lacerated wound over knee, admitted 3 days later, and counter-incisions made for suppuration. Nine days later stiff neck, and on thirteenth day trismus. Treated with bromide of potassium and chloral hydrate. Fifteenth day opisthotonos. After this he slowly and steadily got worse, spasms becoming more frequent and general. Morphia injections were tried. The temperature rose only on the last 2 days, and then only to 101·4°. Died of exhaustion on twenty-fourth day. P.M.—A few hæmorrhagic points in grey matter of spinal cord in lumbar region. Organs normal.

*Syphilis**—

Primary.—Males 2, females 1. C. 1, R. 2. Both men developed eruption and sore-throat in hospital, and left with it still existent. The female, who came with a primary sore, developed a sore-throat, but no other symptom beyond induration of inguinal glands.

Secondary.—Male 1, females 22. C. 17, R. 6. Condylomata 10; congestion of fauces 6; ulceration of fauces 7; of palate 2; of mouth 1; of tongue 1; sores on genitals 6; general induration of glands 1; of inguinal glands 10; of submaxillary glands 5; roseola 4; papular eruption 15; squamous 1; pustular 2; vaginal discharge 11; alopecia 5. *Complications.*—Ventral hernia after ovariotomy 1; scabies 1; fistula in ano 2; abscess of neck 2; phimosis 2; hypertrophied labia 1; salivation 2.

Tertiary.—Male 1, females 5. C. 3, R. 2, U. 1. Periostitis 2; ulcer of thigh and perinæum 1; back and buttocks 1; abdominal wall 1; leg 1; vaginal discharge 1; vegetations 1.

---

* Patients entered as cured were those leaving without external signs.

LOCAL DISEASES.

TUMOURS.

Carcinomata—

Scirrhus of breast.—Females 32. C. 25, R. 1, U. 4, D. 2. Right 10, left 22. In 27 the axillary glands were affected; in 4 of these the supraclavicular also; in 1 there were numerous secondary growths of skin; in only 1 case was any secondary growth of internal organ noted. The average duration before admission in 28 cases was 18 months, or, omitting one case of 12 years' standing, 13 months; the extremes being 2 months and 12 years. Married 28, single 4; 16 patients had borne children, and 6 of these had had 1 or more miscarriages. In 1 case the patient had never suckled with the affected breast. In 6 cases there was a history of trauma; 4 had suffered previously with abscess; 2 cases noticed shortly after parturition; sore nipple in 2; discharge from nipple in 6. In 1 case a tumour had been removed from the other breast 5 years previously. Hereditary history in 5. Family history of phthisis in 8. *Treatment.*—In 21 the breast was removed and the axilla cleared; in 6 the breast only was removed; in 4 no operation was performed on account of extent; in 1 it was deferred on account of glycosuria, afterwards operated on and died (see below). *Complications.*—Erysipelas and pyæmia 1; bedsore 1; 1 left with glandular enlargement in axilla; in 2 cases there was superficial erosion of the tumour; 1 case was of typical contracting variety; 1 cystic.

Fatal cases.

Female, æt. 36, married, 5 children. Abscess in breast after second confinement. Blow 3 years before admission, after which commencement of growth noted. Large growth attached to pectoral fascia, retraction, and discharge from nipple. Axillary glands enlarged. Breast and gland removed. Three days after operation left pleurisy, and patient died on the thirteenth day. P.M.—Recent pleurisy bilateral; lungs congested and œdematous, evidence of new growth at surface; numerous small, well-defined deposits in liver, especially in left lobe; other organs healthy.

Female, æt. 45, married, 9 children, 1 miscarriage. Tumour noted 9 months. Has been treated for last 3 months for glycosuria, now no sugar. Tumour in left breast, size of goose's egg, freely movable; nipple retracted, axilla tender, and glands palpable. Breast and glands removed, wound washed with chloride of zinc and 2½ per cent. carbolic lotion. Dressed with iodoform and salicylic wool under spray. Temperature rose to 102° day after operation, 103° on fourth day, 104·6°, 105·2 on eighth; patient bathed in perspiration, but no rigor noted; temperature, however, frequently varied 3—5° during the 24 hours, and in an irregular manner. On the eleventh day an abscess was noted on forearm, and on the twelfth there were signs of pleurisy. The dressings were changed for perchloride of mercury. Death on fourteenth day after operation. P.M.—Much subcutaneous fat; liver and kidneys fatty; recent pleurisy over lower lobe right lung; no fluid; no pus in joints, but slight diffuse suppuration in forearm.

Recurrent growth in breast.—Females 5. C. 3, R. 1, U. 1. Recurrences occurring 3 weeks, 2, 4, and 16 months, and one 7 years, respectively after operations; all in axilla, near extremity of operation wound. Four were operated on, 3 cured, 1 relieved. The case of long standing (9 years after operation) was too extensive for interference.

Upper jaw.—Male, æt. 62. Polypus nasi 12 years ago, removed; 1 year lachrymal obstruction; tumour in right cheek noticed 10 weeks, growth since rapid; hard, painless, immovable, projects chiefly externally and between lip and alveolus. Growth increased after admission. On 7th day the antrum was opened, the upper part of the jaw, including the orbital plate, the anterior and internal walls, and the middle turbinated bones, were removed, a portion of growth extending into spheno-maxillary fissure scraped out, palate process and alveolus left; 2 polypi removed with middle turbinal bone, softish and yellow. On examination alveolar carcinoma, with much connective tissue. Patient left well on twenty-eighth day, an opening persisting, leading from antral cavity into mouth over alveolus. Three months later returned, having noticed fresh swelling for 3 weeks. General condition still good. A second scraping operation was performed, and in 6 weeks a third, and again in 6 weeks a fourth. Patient left after a stay of 160 days, with a large fungating growth projecting from cheek, much weaker, but still in fair general condition.

Soft palate.—Female, æt. 39. No history of syphilis. Tumour on left side of fauces, almost closing arch, of 7 weeks' growth. Enlarged glands at left angle of jaw. Mucous membrane free. Preliminary tracheotomy and removal of growth, which shelled out readily. Tracheotomy wound closed at time of operation by suture. Patient left 24 days later well. V-shaped defect in palate, glands still enlarged. Microscopic examination showed tumour to be an alveolar carcinoma ('Path. Trans.,' vol. xxxvii, 1886, p. 485).

Of thyroid.—Male, æt. 56. Ten months dysphagia, swelling noticed 9; broad firm swelling between submaxillary region and sternum. Chain of enlarged glands along sterno-mastoid. No previous enlargement of thyroid. Very feeble. Temperature subnormal. Died on eighth day. P.M.—Thyroid much enlarged, evidently seat of new growth, continuous with new growth affecting anterior aspect and sides of œsophagus, which was ulcerated on surface; œsophageal disease much less in extent than that of thyroid, and at borders were defined plaques on external surface; enlarged bronchial glands; no other deposits. Recent hæmorrhage in right caudate nucleus.

Of œsophagus.—Males 3, female 1. R. 3, D. 1.

Male, æt. 50. Seven months' history. Enlarged glands in neck. Small bougie passed.

Male, æt. 60. Dysphagia 12 months. Small tube passed on third day, and patient fed with peptonised beef-tea, &c. Patient left with tube *in situ* on fifteenth day at request of friends.

Female, æt. 64. Dysphagia 5 or 6 years. Treated with bougie, left on fourth day.

Fatal.

Male, æt. 50. One brother died from "tumour of throat" at 54. Syphilis 30

years ago, dysphagia 3 months. Swallows liquids only. On tenth day gastrostomy, first stage. At dressing, 6 days later, a considerable opening found from ulceration around stitches, and through this patient was fed, and all sutures were removed. He died on the seventh day. Treated with morphia and fed with enemata. Operation done under spray, iodoform and salicylic wool dressings. P.M.—Stomach adherent to wound, no peritonitis; new growth just below cricoid, stricture 1½ inches long, admitting No. 12 catheter; a small sinus extended out of œsophagus to right; some infiltration of glands. Œsophagus 3½ inches in circumference above stricture, 1½ below. Pulmonary emphysema, old syphilitic thickenings on surface of liver.

Of intestines.—Male 1, females 2. One transferred, D. 2.

Male, æt. 37. Symptoms obscure. Transferred to medical side.

Fatal.

Female, æt. 67. Trauma (blow), 4 months' swelling in right iliac region noticed 14 days later. Pain and constipation. Swelling incised 5 weeks before admission. Tumour the size of a cocoa-nut, and two sinuses discharging pus. The sinuses were slit up to make a free vent for offensive discharge. Constant diarrhœa. Died on seventy-first day. P.M.—Malignant growth involved cæcum and ileum, papillary outgrowths on mucous surface. Adherent pericardium, pulmonary emphysema, granular kidneys, fatty liver. Exostoses on lateral aspects of cervical and dorsal vertebræ.

Female, æt. 50, attack of obstruction 3 years previously, which passed off. Pain and swelling in left iliac region 4 months. On admission distended abdomen, dulness to umbilicus, tumour, size of cocoa-nut, in left iliac region; per rectum, hard nodulated mass, 4 inches from anus, in anterior wall. On second day commenced to vomit. Abdominal section undertaken with view to possible extirpation, but growth involving sigmoid flexure and upper two thirds of rectum, it was deemed advisable to fix colon to abdominal wall as a preliminary to enterotomy. She died on the third day from exhaustion. P.M.—Adhesions between ascending colon and descending colon and sigmoid flexure. No actual obstruction, but narrowing, and an extensive ulcerated surface 10 inches from anus; the new growth extends for 6 inches vertically. Myofibroma of uterus, left pyosalpinx; pulmonary emphysema; fatty liver.

Malignant disease of rectum.—Males 8, females 6. C. 2, R. 5, U. 5, D. 2. History of heredity in 1 case only, of syphilis in 2. The duration varied between 6 months and 6 years. In 2 cases the growth was squamous epithelioma, 1 of which died; all the others were probably columnar; in 3 cases papillary outgrowths were a prominent feature; 2 cases involved the anus, others were situated ½ an inch, 1, 2, 3, 3½, 4, 4½ and 8 inches above; 1 case was a recurrence 15 months after extirpation of the rectum. *Treatment.*—Three considered unfit for any operation, 4 refused treatment, excision of rectum 2, colotomy 5, of which 2 died. *Excisions.*—Anus removed in both cases, scissors used. In 1 decided cure, left on forty-fifth day; seen 1 month after leaving with good control. The second patient left well and with some control of solid motions, but a doubtful nodule existed near tip of coccyx. Peritoneum untouched in either case. Left lumbar colotomy in 5; in 1 operation completed in 1 stage, in 4 gut primarily sutured to wound, and opened on second, third, second, and eleventh days respectively.

Fatal cases.

Male, æt. 19. Six weeks' history of obstruction, this complete for 12 days. Exploratory abdominal section on thirteenth day. Low position of growth rendered removal inadvisable, so left lumbar colotomy performed, gut stitched to wound in loin; opened on second day, died on third day. P.M.—Purulent peritonitis, most marked near abdominal wound; growth extended for 2 inches, commencing 8 inches from anus, tip of index finger could be passed into constriction. No enlarged pelvic glands.

Male, æt. 66. Hæmorrhage 50 years, difficult defæcation 1 month. Colotomy 15 days after admission; 2 stages, gut opened on third day; died on the ninth day of exhaustion. P.M.—Ulcerated surface extending 3—4 inches from anus, general colitis, with scattered ulcers. Numerous secondary deposits in liver, and a small abscess.

Of parotid.—Male, æt. 42. 8—9 months' history, growth broke down, and a spontaneous opening found 3 months later. Facial paralysis 7 weeks. Ulcer on surface. Probably scirrhus, unfit for operation.

Of chest wall.—Male, æt. 32. Keloid of chest wall of 14 years' standing. Operated on twice, and after 1 operation growth nearly disappeared subsequently to an attack of erysipelas. Signs of malignant degeneration 6 months. Died of exhaustion forty-second day. P.M.—Ulcer occupying upper half of abdominal, and lower half of chest wall on anterior aspect; surface smooth, surrounded by circular rampart of new growth 1—2 inches deep; independent nodule in axilla; growth completely infiltrated abdominal wall in affected part, no muscle being visible; left pleura infiltrated throughout, lung immovably adherent. Omentum and diaphragm, and connective tissue in portal fissure, also generally infiltrated; intestines and stomach free; isolated nodules in heart and right pleura. Nodules in kidney. Infiltration of glands of neck, thorax, and abdomen.

Abdominal wall.—Female, æt. 53. Small isolated nodule noticed 4 months in sheath of right rectus abdominis. Removed on twenty-fourth day, and found to be scirrhus. No primary growth discovered. Left on fortieth day cured. Returned 3 months later with several isolated growths in loin and abdominal wall, which were not touched.

Of scalp.—Male, æt. 62. Swelling, size of walnut, noted at junction of hairy scalp with forehead 8 months before admission, 1 month before admission incised, blood only escaping. Tumour size of fœtal head, 14 inches in circumference, fixed to skull and with a fungating spot; no enlarged glands, no pulsation. Occasional hæmoptysis. Tumour removed on ninth day; tumour involved skull, a perforation the size of a shilling leading down to the dura mater, which was involved. Base treated with chloride of zinc and sanguinaria. Bleeding controlled by a Martin's bandage. No signs of cerebral inflammation, fresh growth restrained by repeated applications of the caustic. Patient left on forty-seventh day relieved. A fungating spot remained, he had lost much flesh, occasional hæmoptysis, but no distinct evidence of any secondary deposit existed. Microscopically alveolar carcinoma.

Of liver.—Female, æt. 45. Jaundice, emaciation, tumour in right hypochondrium. Came up for abdominal exploration, which was thought inadvisable.

Epithelioma—

(*a*) *Nose and upper lip.*—Male, æt. 22. Ulcer involving upper lip and ala of nose of 8 months' standing. Scraping and partial excision, followed by cicatrisation at end of 121 days; left with discharge from nose, and returned at end of 1 month with fresh ulceration. A similar operation performed, but after 80 days' stay, left with growth progressing. Nose gone and frontal sinuses evidently invaded. Intercurrent attack of pleurisy (case similar to one included in Report in vol. xiv, 1884, p. 335).

(*b*) *Cheek and upper lip.*—Males 2, female 1. C. 1, R. 1, U. 1. One recurrent; 1 developed in a scar of old ulceration, in which warty growths had previously developed and been removed.

(*c*) *Lip.*—Males 8. C. 8. In 2 glands were affected. All treated by excision.

(*d*) *Tongue.*—Males 15, female 1. C. 8, R. 2, U. 4, D. 2. In no case history of heredity, in 3 history of syphilis. In 4 leukoplakia of long standing, 4 cases recurrent, following previous operations 10, 4, 4, and 2 months respectively. In 6 of the primary and 3 of the secondary cases, enlarged glands existed. One case complicated by gout, another by cardiac hypertrophy and aortic valvular disease. *Treatment.*—Tongue removed more or less completely in 9 cases, in none less than half removed. In 6 scissors were employed, in 1 scissors and sharp spoon, and in 1 the galvanic écraseur. Glands were removed in 2, in 1 the floor of the mouth was cleared out, in 1 the tonsil was removed also, in 2 cases a temporary ligature passed through the centre of the tongue was used to control hæmorrhage during operation, in 3 the jaw was divided, in one of these a portion of jaw was removed with the floor of the mouth. Two of the latter died (see below). Three cases were too advanced for operation, in 3 operation was contra-indicated, and 1 left at his own request.

Fatal cases.

Male, æt. 63. Noted 16 days only, commencing at back of floor of mouth. Lateral division of jaw and galvanic écraseur employed for removal. Patient died on fifth day. P.M.—No secondary growths. Lungs hyperæmic, œdematous, some islands of broncho-pneumonia. Death from exhaustion.

Male, æt. 56. Four months' history. Ulcer on left side of tongue. Removed by scissors after division of jaw. A gland dissected out; died on third day. P.M.—Tonsillitis. Vegetations on aortic valves, but these competent, heart slightly hypertrophied. Hypostatic pneumonia, some pleurisy. Kidneys healthy, with some small cysts. Liver fatty.

(*e*) *Tonsil.*—Male, æt. 51. Sore-throat 2½ months, glands noted 14 days later. Sloughy ulcer on right tonsil with hard everted edges. Glands at right angle of jaw. Unfit for operation.

(*f*) *Larynx.*—Females 2. R. 1, U. 1. One, æt. 62, with urgent dyspnœa and dysphagia much improved by tracheotomy.

(*g*) *Submaxillary glands.*—Male, æt. 41. Cured. Following excision of tongue included above. Excised 3 months after previous operation.

(*h*) *Generative organs.*—Male 1, females 2. C. 2, D. 1. Two recurrent.

Fatal case.—Male, æt. 60. Epithelioma of scrotum and infiltrated inguinal glands removed 6 months previously. Wounds unhealed when he left, were

attacked by erysipelas for which he was in hospital 10 weeks and never closed. Admitted for pyæmia (see Special Table, p. 406).

(*i*) *Upper jaw.*—Female, æt. 62. Grandmother died of cancer. Pain noticed 9 weeks, swelling 8. Small firm tumour on outer surface of left superior maxilla, a small abscess on the surface. Left superior maxilla removed, cavity plugged with sponges. Wound healed in 19 days. Well-marked squamous epithelioma.

Rodent ulcer.—Males 3, females 2. C. 2, R. 2, D. 1. Two recurrent, 4 of face, 1 of scalp. One never healed after previous operation for rodent ulcer of 9 years' standing. One female, æt. 55, 4th recurrence. Ulcer on scalp removed baring dura mater; discharged relieved. Refused a plastic operation. One affecting right cheek in male, æt. 34, much too extensive for operation, of 12 years' standing. Admitted for hæmorrhage following trauma.

Fatal case.—Male, æt. 75. Ulcer of 5 years' standing removed. Sudden death 16 days later. P.M.—Atheroma of aorta, calcification of proximal extremities of chordæ tendineæ, heart large, mitral valve somewhat thickened, but competent. Enlargement of prostate, and slight chronic cystitis.

Sarcoma—

(*a*) *Of skin.*—Male 1, female 1. C. 1, U. 1.

Male, æt. 27. Commenced on site of mole, radial aspect left bend of elbow, 6 months' standing, following a trauma. Removed after subcutaneous injection of cocaine. Microscopically, spindle-celled sarcoma with abundant pigment.

Female, æt. 50, married. Ten years' history, developed on site of mole. Increase gradual until 6 months before admission. Ulcerating tumour size of crown-piece above and to left of umbilicus; numerous secondary nodules extending toward left groin, glands of which were much enlarged. No operation.

(*b*) *Of bones.*—Males 7, females 6. C. 7, U. 5, D. 1. Heredity traced in none; peripheral 9; central 4; recurrence in 2, 1 after 3 months cured by re-amputation, 1 now in hospital (July, 1887) with a recurrence after a re-amputation; both in stump. History of trauma in 5; spontaneous fracture in 2. Lower jaw 1, tibia 1, ilium 1; femur 3; tibia 4; upper jaw 3 (palate process 1); lower jaw 1; multiple 1; synovitis of knee in 2; fixation of knee 1; lymphatic gland enlarged in 5. On microscopic examination 1 myxo-sarcoma; 3 myeloid; 2 spindle-celled; 4 round-celled; 3 not operated on, undetermined. One myeloid, that of palate, a recurrence of 7 months' standing, original tumour removed 11 months earlier, came from Guy's. *Treatment.*—Amputation of thigh 5; re-amputation 1; excision of half lower jaw 1; unfit for operation 5; left at own request 2.

Fatal case.—Female, æt. 57. Struck forearm 8 months before admission. Swelling of radius developed, and later swellings of humerus, tibia, ischial tuberosity, occipital bone, and lower jaw; enlarged glands in axilla; very fat woman. Died 68 days after admission. P.M.—Tumours in regions already named, most of which contained some bone, numerous secondary deposits in lungs and glands. Microscopically spindle-celled sarcoma.

(*c*) *Of cellular tissue.*—Males 6; females 3. C. 4, R. 1, U. 2, D. 2. Recurrent 1; round-celled 3; spindle-celled 3; undetermined 3. Neck, 1 about middle; 2 (1 recurrent) in post. triangle; 1 in submaxillary region; 1 below clavicle; 1 (recurrent) in axilla; 1 in inguinal canal; 1 in pelvis; 1 in thigh.

Female, æt. 34. Tumour of 9 months' standing partially removed, extended so deeply in post. triangle that complete removal considered impracticable. After operation remaining mass shrank, and she left relieved after 46 days' stay. Returned in 9 months with localised tumour extending from cicatrix. This dissected out, baring nerves and subclavian vessels; left at end of 22 days cured. Large round-celled sarcoma.

Male, æt. 21. Large growth in submaxillary region projecting up in floor of mouth; 22 months' standing. Tracheotomy, median division of lower jaw; removal found impracticable; left much relieved after 41 days.

Male, æt. 38, thigh.

Male, æt. 64, inguinal canal, left at own request, nature uncertain.

Fatal cases.

Male, æt. 21. Tumour commenced growing in right axilla 5 years previously. During fourth year two operations were done, on each occasion growth supposed to be completely removed. Recurrence noted 3 months before admission. Very large tumour in axilla, at time of removal found to so surround vessels in axilla and root of neck as to make complete excision impossible. Died of shock 2½ hours after operation. P.M.—Axillary vein in whole extent invaded and lumen almost closed. Secondary deposits in lungs. Otherwise healthy.

Male, æt. 41, deaf-mute. Six months' history of hæmorrhoids. These protruded and were removed by clamp and cautery. Patient died 2 days later. P.M.—Sarcoma between bladder and rectum, hydronephrosis, broncho-pneumonia, and aortic valvular disease with hypertrophy.

Myxo-fibroma.—Male 1, females 2. C. 3. Male, æt. 19, of thumb. Female, æt. 33. Large fusiform tumour in right ham of 18 months' growth, movable laterally not longitudinally; removed. Loss of power in muscles supplied by external popliteal part of nerve, which was stretched over tumour. Female, æt. 22. Of upper jaw of 2½ years' standing. Removed with the alveolus and anterior wall of antrum.

Villous tumour of bladder.—Male, æt. 47. Five years' history. Tumour removed by median perinæal incision at end of 3 years; recurrence of symptoms 18 months. Supra-pubic cystotomy, growth removed as completely as practicable. Left on fifty-seventh day with no symptoms (see 'Clin. Soc. Trans.,' vol. xx, p. 69.

Of kidney.—Male 1, female 1. U. 1, D. 1.

Male, æt. 4. Diarrhœa 2 months, tumour noticed 3 weeks. Tumour on right side, extending from ribs to iliac crest, and forwards to left of umbilicus; fixed; non-fluctuating. Urine 1020, trace of albumen. Interference considered unjustifiable.

Fatal.

Female, æt. 53, widow. Five children. Tumour in abdomen noted 20 years after birth of second child. Since then gradual increase. Hæmaturia 1 week. Clots passed, for some days catheterisation has been necessary. Tumour firm, lobulated, in left flank, but movable to right, blood in urine. Uterus normal. Occasional hæmaturia while resting in hospital. On forty-first day abdominal section, incision in left linea semilunaris. Outer layer of right mesocolon, divided, and tumour enucleated, pedicle, size of two fingers, contained some renal? tissue, ligatured in two with silk; considerable hæmorrhage. Peritoneal cavity and

wound washed out with water at 100° F. Peritoneum sutured, and abdominal wound closed. Died of collapse 4¾ hours after operation. P.M.—No peritonitis, no blood or clots in cavity. Pedicle consisted of renal vessels only. Atheroma of aorta and mitral valve. Lungs emphysematous, 30 gall-stones in gall-bladder. Right kidney slightly hypertrophied, otherwise normal.

Of testis.—Male, æt. 3½. Enlargement of right testis, noted 3 months. Hard, painless, size of walnut. Castrated. Discharged well 31 days after operation.

Fatal.

Male, æt. 40. Hydrocele, 12 months. Tapped 6 months ago; 1 month later iodine injected, and 3 months ago a seton was passed, since then continuous suppuration. Hard smooth enlargement of right testis, about size of an orange, sinus on outer side. Pain in perinæum, tenderness. Skin adherent behind, cord thickened, enlarged gland in groin. Castration. Temporary ligature of cord, and then ligature of separate vessels. Iodoform and salicylic wool dressings. Operation followed by pain and high temperature (102° next morning). Suppuration of wound on third day. On fourth day pain in belly and vomiting, these continued, belly became distended, and he died 9 days after the operation. P.M. —No upward spread of suppuration, stump of cord normal. No thrombosis. General slight peritonitis, especially over small intestine, some coils of which were loosely adherent. Organs somewhat decomposed, apparently healthy.

Ovarian disease.—C. 14, D. 2. Fibroma 1, dermoid 1, cystic 14.

Fibroma.—Female, æt. 27. Swelling noticed 3 months, pain 3 weeks. Prolapsus uteri 6 months. No swelling of feet, constipation, or difficulty in micturition. Menstruation regular. Firm tumour occupying both iliac and hypogastric regions, feels lobulated, tender. Uterus prolapses, sound passes 5 inches. Dulness confined to region occupied by tumour. Face congested, not anxious. Urine normal. Left ovariotomy. Incision from 1 inch below umbilicus to 1½ inches above pubes. Tumour solid, adherent to uterus on left side, connected with left ovary. Right ovary healthy. Silk ligatures for pedicle cut short. Silk sutures for wound. Spray used. Iodoform and salicylic wool dressing. Dressings on seventh and eleventh days, discontinued on twentieth day. Uninterruptedly good recovery. Temperature never above normal. Tumour very firm, lobulated on surface, on section cut like a woody turnip, whitish yellow, mottled, with red near periphery. Microscopically firm fibroma, with slight admixture of plain muscular fibre.

Dermoid.—Female, æt. 23, married, 1 child. 1 miscarriage 3 months before admission followed by menorrhagia for 8 weeks. Since miscarriage pain in abdomen lately localised to left side. Swelling noticed only 3 to 4 weeks; some difficulty with micturition and defæcation. Habitually constipated. Tumour in umbilical region; dull, fluctuation, well-marked thrill. Uterus retroverted; length of cavity normal. Ovariotomy 2 inch median incision afterwards prolonged up to umbilicus. One large cyst tapped and tumour removed; pedicle ligatured with silk cut short. Tumour made up of one large cyst and numerous smaller ones. Three pints of fluid in large cyst. Microscopic examination revealed presence of bone, cartilage, and plain muscle in the tumour. Spray

used, silk sutures, iodoform and salicylic wool dressings. Some pain and restlessness at first; no rise of temperature. Dressing on sixth day; sutures removed. Left cured on twenty-ninth day.

Cystic.—Female, æt. 22, single. Swelling in right flank about 12 months. Catamenia regular. Cystic tumour occupying lower abdomen, extending from right iliac fossa. Operation had to be deferred 18 days in consequence of hæmorrhage from hymen ruptured during vaginal examination. Ovariotomy. Incision 3½ inches long. Fifteen pints of dark coffee-ground fluid evacuated from single cyst. Sac weighed 11 oz. Spray; iodoform, salicylic, wool, and pine-wood dressings. Double-silk ligature to pedicle cut short. Dressing on third day; 4 sutures removed. Complained of pain and general tenderness, and some vomiting and distension. During first fortnight an abscess formed in abdominal wound, and was opened on the eleventh day, after which the temperature fell and she got rapidly better. Temperature never above 101·4°. Left 57 days after operation cured.

Female, æt. 56, widow. 1 child living, 4 miscarriages. Menopause at 45. Difficulty in micturition and pain 3 years. Prolapse of uterus incomplete. Swelling noticed 10 weeks. Dulness, thrill, and tumour in right lower abdomen. Uterus small, retroverted. Left ovariotomy 3 inch incision. Some adhesions to wall of bladder broken down with finger. Silk ligatures for pedicle cut short. Spray used; iodoform and salicylic wool dressing. Dressing on sixth day; sutures removed. Parotid bubo on eighth day. No rise of temperature with it, and it did not suppurate. Left cured 20 days after operation.

Female, æt. 24, single. Admitted on medical side with acute peritonitis, where she stayed for 1 month. During that period had an attack of phlebitis. When transferred swelling in lower abdomen extending from left iliac fossa; thrill and fluctuation. Both legs œdematous. Menses not seen for 3 months. Left ovariotomy 3 inch incision. Some adhesions at point of a previous tapping had to be broken down. Wound enlarged to clear off adherent intestine and omentum. Numerous ligatures needed. Some omentum removed. Pedicle ligatured with silk cut short. Three pints of fluid in sac which weighed 1 lb. 9 oz. Spray; iodoform and salicylic wool dressing. Delirium throughout first day after operation. Dressed on seventh day; stitches removed; suppuration of stitch-holes. Twelfth day temperature rose to 101·6°, and patient vomited on and off for 2 days. On thirteenth day wound opened up but no pus found. Dressed with Lot. Sodæ Chlor. Wound granulated up slowly, and patient was discharged cured 39 days after operation.

Female, æt. 48, widow. Catamenia still present but scanty. Pain first symptom, tumour, noted for 3 months. Constipation and painful micturition. Tumour in lower abdomen, spreading from right iliac region. Ovariotomy 4 inch incision. Seven pints of fluid from three cysts; tumour weighed 1 lb. 7 oz. Pedicle ligatured with silk cut short. Spray; iodoform and salicylic wool dressings. Dressed on fifth day; sutures removed. Submaxillary bubo on seventh day after operation; no suppuration. Left cured on twentieth day after operation.

Female, æt. 52, widow, 2 children, 1 living, 1 died at 6 months. Menopause at 50. Gradual enlargement noticed "some years." Abdomen much enlarged, especially on right side of lower part. Uterus anteverted, otherwise

normal. Right ovariotomy 5 inch incision, later extended upward. No adhesions; pedicle ligatured with silk cut short. Spray. Carbolic gauze dressing. Cysts contained 18½ pints; tumour weighed 11 lbs. 1 oz. Dressing on seventh day. Good recovery. Discharged cured on twentieth day after operation.

Female, æt. 27, married 10 years, no catamenia since; 4 children, all living. Pain and swelling noted 12 months. Large tumour swelling extending to ensiform cartilage, more prominent on left side. Right ovariotomy 4 inch incision, afterwards enlarged upwards. Tumour multilocular, 11 pints of fluid, weight 21 lbs. 10 oz. Numerous adhesions to omentum. Pedicle ligatured with silk cut short. Spray; iodoform and salicylic wool dressings. Dressed on eighth day; sutures removed. Feeble, and on fifth day champagne ordered. Wound healed slowly; suppuration present at first dressing. On thirty-fifth day a considerable collection of pus in abdominal wall evacuated spontaneously. Discharged cured 60 days after operation.

Female, æt. 25. Catamenia scanty. Enlargement of abdomen noted 1 year, tumour 3 months. Tumour occupying lower two thirds of abdomen. Uterus slightly anteflexed and drawn up. Left ovariotomy 5 inch incision. Fluid 7 pints, weight of tumour 1 lb. 9¼ oz. Pedicle ligatured with silk cut short. Spray; iodoform and salicylic wool dressings. Dressed on eighth day; stitches removed. Uninterrupted recovery. Discharged cured 18 days after operation.

Female, æt. 56, single. Swelling in abdomen noted 6 months after a fall from some steps. Difficulty in micturition, swelling of right leg. Tumour in lower abdomen spreading from right iliac region. Ovariotomy 5 inch incision. Adherent to bowel. Seven pints of fluid; sac weighed 3¾ oz. Pedicle ligatured with silk cut short. Spray; iodoform and salicylic wool dressing Dressed on seventh day, sutures removed. Wound well on fourteenth day; left cured on twenty-third day after operation.

Female, æt. 34, married. Three children, one living. Pain and swelling noticed 6 months. Tumour in lower abdomen spreading from left side. Tapped twice in medical wards. Uterus high, sound passes 3¾ inches. Left ovariotomy, 3 inch incision afterwards enlarged, ascitic fluid and flaky lymph on tumour. Multilocular tumour, cysts readily bursting. Pedicle ligatured with silk cut short. Peritoneal cavity washed out with water at 100° F., and a quantity of lymph removed, intestines were matted together in upper abdomen. Bantock's glass drain. Tumour weighed 4 lbs. 9 oz. after puncture of numerous cysts. Spray, iodoform, carbolised sponge applied to mouth of drain. A small amount of clear inodorous discharge from drain during first 3 days; temperature varied between 99° and 101·6°. Left cured 65 days after operation.

Female, æt. 23, married. First confinement 8 weeks before admission, tumour only noticed since then. Tumour reaches to ensiform cartilage. Right ovariotomy 4 inch incision; 7 pints of viscid brownish fluid drawn off. Pedicle ligatured with silk cut short. Spray; iodoform and salicylic wool dressings. Dressed on seventh day, sutures removed. Discharged cured 20 days after operation.

Fatal.

Female, æt. 41, married. One child. Catamenia regular. Pain noted 11 months, tumour 5 months. Right ovariotomy 4 inch incision. Omental adhe-

sions. Cyst mutilocular, dark coloured and viscid contents, 10 pints removed Peritoneal cavity irrigated with 1 per cent. boracic solution at 98° F. Much recent lymph removed. Pedicle ligatured with silk cut short. Iodoform and salicylic wool dressings; spray. Patient commenced to vomit on second day, complained of pain in left iliac region. Temp. 102°, pulse 134, feeble. Wound dressed. Sank rapidly, abdomen became distended. Died on third day from peritonitis. Temperature rose to 103°, pulse to 174 before death. No P.M. allowed.

Female, æt. 31. Tumour occupying whole anterior aspect of abdomen. Right ovariotomy 4 inch incision. Gush of fluid on opening belly, incision extended. Cyst wall inflamed, adherent to intestines and anterior abdominal wall. Much flaky lymph. Cyst burst into abdomen. Much lymph and fluid removed by sponges. Pedicle ligatured with silk cut short; 19 pints of fluid removed; multilocular cyst weighed 19 lbs. 2 oz. Spray; iodoform and salicylic wool dressings. Progressed favorably for first three days, wound looked well, but there was suppuration of suture holes, 2 sutures removed. Fifth day began to complain much of distension; perspired much and on sixth day became delirious, and collapsed. No vomiting; died on seventh day. Temperature rose at once after operation, varying afterwards between 101° and 103°; it rose to 106·4° before death. P.M.—Much lymph on intestines, especially about incision, pus in pelvis, and much lymph in Douglas's pouch. Small cysts in left ovary. Cystitis, pyelitis, and a few suppurating foci in kidney.

Parovarian.—Female, æt. 38, married. Five children. Swelling of abdomen noted 5 years, disappeared, and was again noted 3 years ago. Two and a half years ago tapped at St. Bartholomew's. Severe pain 14 days before admission on medical side. Large fluctuating tumour spreading from left iliac region. Right ovariotomy 3 inch incision afterwards enlarged 1½ inches upward. Multilocular cyst, very thin walls. Some cysts contained clear fluid 1006 sp. gr., others dark fluid with blood-discs. Pedicle ligatured with silk cut short. Peritoneal cavity irrigated with water at 100° F. Spray; iodoform gauze and salicylic wool dressing. Dressing on fourth day. Course favorable, but temperature varied between 100° and 101° during first week. Discharged cured twenty-sixth day after operation.

Cyst of broad ligament.—Female, æt. 30, married. One child. Catamenia normal, till 5 years ago, when child was born, since then bi-monthly. Bowels confined, micturition difficult, at times too frequent. Dulness and tenderness in left iliac region. Tumour in Douglas's pouch. Uterine cavity normal length. Double ovariotomy. Two inch incision afterwards enlarged. Both ovaries cystic and removed; cyst of right broad ligament the size of a small melon, thin-walled, and with translucent contents (thought at first to be a hydrosalpinx). Broad ligaments ligatured with silk cut short. Spray; iodoform and salicylic wool dressing. Menstrual discharge third day after operation. Dressed on fourth day, and on sixth stitches removed. Left hospital cured thirty-third day after operation.

Hydrosalpinx.—Female, æt. 19. Catamenia commenced at 13, regular till 15, when she had a child; recommenced 2 months after delivery, appearing regularly for 3 months, and then became irregular, this persisting up to time of operation.

Prolapse of uterus noted 5 months after confinement, for which a pessary was worn for 18 months. Pain in lower part of back and hypogastrium has persisted ever since confinement, also slight leucorrhœa between the irregular periods. On admission pain and tenderness, with slight enlargement in left iliac fossa. Uterus normal in length, somewhat fixed, soft, elastic, tender, swelling high up in fornix. Twelve days after admission abdominal section, 2 inch median incision. Soft rounded tumour, which proved to be a pedunculated cyst containing dark sanguineous fluid, connected with the left Fallopian tube, discovered. The incision was extended towards the pubes, the pedicle ligatured, and the tube, left ovary and cyst removed; there were several small cysts in the broad ligament. Silk ligature for pedicle cut short, carbolic spray used, iodoform and salicylic wool dressings. Was delirious during the first night, and complained of some pain. Temperature rose to 100°. On fourth day wound dressed and deep sutures removed, union complete. On tenth day temperature was 101°, and when dressed some suppuration in lower part of wound was noted and laid open. After this steady improvement with occasional rises of temperature. Left hospital on thirty-seventh day cured.

Post-peritoneal cyst.—Female, æt. 54, married. No children. Menopause 5 years before admission. Pain 9 months, swelling 7 months. Glandular swelling in neck 6 months. Tumour in right iliac and lumbar regions, extending into umbilical region; fluctuating, slightly movable. No free fluid. Abdominal section median. Tumour thought to be renal, so belly closed; no hæmorrhage. Temperature rose at once after operation; patient died on third day with signs of septic peritonitis. Temp. 105·4° before death. P.M.—Wound healthy, uniting, intestines glued together with lymph, dirty pus in pelvis and lumbar regions. Simple serous cyst behind cæcum and ascending colon behind peritoneum, contained three quarters of a pint of clear yellowish fluid with a few flakes of coagulated fibrin. Cyst wall thick, smooth lining membrane. Left ovary transformed into a cyst the size of a tennis ball. Small hæmorrhages beneath renal capsule. Lungs congested. Pericardium adherent.

Myo-fibroma of uterus.—Females 7. C. 1, R. 5, U. 1. In 5 no interference was indicated, 4 were relieved, and 1 transferred to the obstetrical department; 2 cases were operated on.

Female, æt. 42, married; 5 years previously miscarried, and was then told she had a tumour forming. Rapid increase of late, catamenia irregular, considerable hæmorrhage. Large nodular tumour, extending half way to pubes in mid-line. Abdominal exploration, fibroids not removable without uterus, and ovaries not palpable; a pedunculated fibroid was removed and abdomen closed. Patient made a good recovery. Spray, iodoform, and salicylic wool dressings.

Female, æt. 44, married, 1 child. Catamenia regular till 6 weeks ago, but accompanied by pain, and of late excessive. Tumour noted 6 months, smooth, extends up to umbilicus. Ether. Median abdominal section, 9½ pints ascitic fluid evacuated. Mesentery adherent, peeled off; base transfixed and tied with stout silk, open cavity of uterus in stump touched with nitrate of silver and chloride of zinc. sol. gr. xl ad. ℥j. Wound closed, dressed with iodoform and salicylic wool. Stump not brought up. Dressed on seventh day and stitches removed. Left cured on twenty-fifth day after operation.

Dermoid cyst over sternum.—Female, æt. 29, married. Swelling noted at 6 weeks, gradual increase, size of hen's egg at 24. During last 5 years has doubled in size, 13 inches in circumference. Walls slack. Removed by median longitudinal incision; no defect in sternum. Dressed with iodoform and salicylic wool. Left cured 27 days after operation.

Fibroma of superior maxilla.—Male, æt. 11. Swelling on left side of nose noted 3 months. An attempt made to clear nostril with forceps. Since then rapid increase. Swelling of left cheek, protrusion of eyeball, lachrymal and nasal obstruction, fulness above zygoma, lower margin of orbit more prominent than right. Pain, enlargement of superficial veins. Tumour palpable in posterior nares. Langenbeck's osteo-plastic resection of upper jaw, but growth too extensive to be completely removed. Patient died of shock 16 hours after operation, rallied once, and temperature rose to 101·2° before death. P.M.—Oval opening into cranial cavity $\frac{3}{4} \times \frac{1}{3}$ inch., just anterior to sella turcica due to pressure absorption. Post-ethmoidal cells on left side distended with growth, which apparently started from back of upper jaw. Microscopically firm fibroma.

Nævus of face.—Female, æt. 1 year 5 months. Large cutaneous and subcutaneous nævus of left side of face and neck, involving ear. Six platinum wires passed through growth and connected with a 20-cell battery; needles left in 3 days. Death in 7 days. P.M.—Sloughing and ulceration of growth on internal surface of lower lip. Right tonsil and tongue much congested; this also case with vocal cords. Pneumonia of lower lobes, apparently not septic.

CIRCULATORY SYSTEM.

Aneurysm.—Male 1, female 1. C. 2.

Popliteal.—Male, æt. 29. No history of syphilis. Swelling of leg and foot came on suddenly 2 months previously, accompanied by throbbing pain in calf and foot. Rested 1 month and improved. Small tumour noted 1 month. On admission leg semi-flexed, aneurysm in popliteal space, no pulsation perceptible in tibials, arteries rather rigid, not tortuous. Digital compression for 14 hours caused slight hardening but no cessation of pulsation. Femoral tied at apex of Scarpa's triangle with kangaroo tendon, reef-knot with an extra loop, coats not ruptured. Iodoform and salicylic wool dressing. Patient left cured on fifty-sixth day, the tumour rapidly disappearing. Was in for 40 days 2 months later, complaining of pain in chest and neuralgia of an ulcer of leg. No thoracic aneurysm found.

Brachial.—Female, æt. 56, married. Syphilis 10 years previously. Occasional attacks of dyspnœa during last 2 years. Swelling the size of a hazel nut noticed 2 years after a strain, gradually increased till 3 months ago, when it was the size of a walnut, since then rapid increase. Aneurysm the size of a hen's egg on brachial at bend of elbow. No positive signs of thoracic aneurism. Esmarch's bandage to forearm and carried up arm, missing tumour, for 1 hour, followed by 10 hours' digital compression of the brachial, caused little change. Galvano-puncture was performed on the sixteenth day, the needles being left in 13

hours, during which time digital compression was kept up. Considerable diminution of pulsation and hardening followed, skin being slightly inflamed, especially around punctures. Aneurysm continued to improve, and on sixteenth day was solid.

Thrombosis.—Two fatal cases.

Female, æt. 22, servant. Out of health 2 months, catamenia absent 3 months, swelling of left leg and calf 14 days. Leg white and firm, superficial veins enlarged, extremely anæmic. Seven days after admission sudden attack of dyspnœa and pain in chest, temperature falling to 97·4°. Improved somewhat during next 6 days, but condition such as to render proper examination of chest impossible. On night of thirteenth day died. P.M.—Thrombosis of left external iliac vein, and embolism of pulmonary artery. Fatty degeneration of heart.

Female, æt. 19, barmaid. Veins not noticed to be varicose, but somewhat prominent. Pain and swelling of left leg 8 days; for 2 days has been in bed. Catamenia regular. On admission firm white swelling of leg and thigh; superficial veins enlarged; extremely anæmic; temp. 102·2°. Swelling increased; superficial veins on left side of abdomen became prominent, and deep veins could be felt as cords. On the ninth day swelling of right lower extremity noted, and this increased as left leg improved. On thirteenth day pain and tenderness in right half of abdomen. On seventeenth day much headache, and on eighteenth she vomited some coffee-grounds-like matter. Later she became drowsy, semi-conscious, and there was some twitching of the arms. On the nineteenth day she was much worse, the limbs at times rigid, and as she could not swallow she was fed by the nasal tube. The respiration and pulse became very irregular, and she died on the nineteenth day. Throughout the temperature was elevated, varying between normal and 103° in the mornings, 100° and 103° in the evenings. A P.M. was refused, but a hurried examination showed the deep veins of both upper and lower extremities to be thrombosed, the thrombosis extending to the iliacs and cavæ.

DUCTLESS GLANDS.

Enlarged thyroid gland.—Males 2, females 7. C. 3, R. 5, D. 1. Of the 9 cases 8 underwent some form of operative treatment.

Division of isthmus.—Male, æt. 16, native of Devizes. No hereditary history. Swelling noticed 12 months only, but occasional stridor and dyspnœa for 2 years; it has about doubled in size since first noted. On admission swelling uniform and symmetrical. Isthmus not much enlarged, trachea can be felt from cricoid to sternum. Occasional fits of dyspnœa, stridor at night. Excision of isthmus (about 1 inch), sides doubly ligatured, wound drained, iodoform and salicylic wool dressings. Trachea keel shaped. The stridor was at once relieved, and he left the hospital 35 days after the operation, with the wound firmly healed and the thyroid somewhat diminished in size.

Fatal case.—Female, æt. 33, native of Shropshire. Goitre first noticed at 18 years of age. Rapid increase during last 6 weeks. Large growth, bulging into right side of pharynx and displacing larynx upwards. No stridor or difficulty in breathing, but great dysphagia; can take fluids only. Very dark complexion. Eyes not abnormally prominent, suffers much from palpitation at times, carotids

beat very forcibly. Pulse 108. Expectorates a good deal of frothy mucus. Larynx normal, voice somewhat altered. Excision of isthmus on seventh day, double ligatures to sides, gland very vascular, drain inserted, wound dressed with iodoform and salicylic wool. Trachea compressed laterally. Patient was extremely restless after operation, and was little relieved by morphia. The pulse was very rapid, reaching 160, and 9 hours after the operation she died suddenly. P.M.—Gland considerably enlarged, especially right lobe, enlargement due to hypertrophy of gland tissue and increased vascularity; two small cysts with fluid contents were found. The trachea was keel shaped, and much compressed for about 3 inches of its length. Slight cardiac hypertrophy, valves normal. Old pleural adhesions. Lungs congested and emphysematous, some muco-pus in tubes. Spleen 6 inches in vertical measurement, looked healthy. Congestion and some small parenchymatous hæmorrhages in lower part of ileum. Other organs healthy.

Partial removal.

Female, æt. 15, native of Clapham. Swelling noted 8 years after 1 year's residence with an aunt in Lancashire, who had a similar enlargement. Swelling symmetrical, isthmus palpable, and one border of an isolated calcified median growth simulated the rings of the trachea. Operation was delayed on account of absence of the catamenia, but on the fiftieth day the central growth was enucleated. The trachea was displaced to the right and compressed laterally. The removed lobule seemed joined to the gland by connective tissue only. A drain was inserted, and the wound dressed with iodoform and salicylic wool. The pulse was somewhat rapid and feeble after the operation, but she made an excellent and steady recovery, leaving 21 days after operation, the neck being half an inch less in circumference than on admission.

Female, æt. 17, native of Wandsworth. Swelling noticed 3 years. No marked pressure symptoms. Enlargement soft and elastic, more extensive on right side. Distinct central tumour, apparently cystic. On ninth day the central portion, which was about the size of a small orange and attached by a narrow pedicle to the right lobe, was removed. The pedicle was doubly ligatured, and the wound dressed with iodoform and salicylic wool. The trachea was keel-shaped. She made a rapid recovery, the temperature never rising above normal, and left on the thirteenth day after operation cured.

Female, æt. 30, native of Stepney. Enlargement noted 12 months, rapid increase and some dyspnœa for 6 months. Pain at catamenial periods, and at times palpitation of the heart. Treated for 1 month with liquor arsenicalis ♏v, t. d., with little effect. On thirtieth day a portion of the left lobe was removed after double ligature, the removed portion was chiefly solid with a few small cysts. Iodoform and salicylic wool dressings. She made a good recovery, and left on the day after operation, the neck being 1 inch less in circumference than on admission.

Incision of cysts.

Female, æt. 46, native of Peckham. Noted 7 years' gradual increase, change in voice, no dysphagia or dyspnœa. Considerable enlargement, especially on right sides. One large cyst. On seventh day cyst incised and stuffed with iodoform gauze. Slight hæmorrhage on first night easily restrained. She left on the

thirty-fifth day after operation, much relieved, but with a drainage-tube still *in situ.*

Male, æt. 50, native of Stanmore, Middlesex. Two sisters similarly affected. Tumour noted 40 years, gradual increase, now size of two fists, with two fluctuating spots which are apparently suppurating. Both spots were incised, and patient left 60 days later with two sinuses persisting, but the tumour not more than half the size it was on admission.

DIGESTIVE SYSTEM.

Hernia.—(See Special Table.)

Intestinal obstruction.—Males 1, females 2. D. 3.

Male, æt. 28, fireman. R. inguinal hernia 2 years. Sudden pain in abdomen followed by vomiting 3 days before admission. Vomiting on admission stercoraceous, meteorismus; hernia flaccid and readily reducible; distension moderate; no dull or hard spot; patient unable to localise pain. Pulse 136, temp. 101°. Median abdominal section; a band found constricting small intestine, which was ligatured and divided. Peritoneal cavity washed out with 1 per cent. boracic lotion at 100° F. Iodoform and salicylic wool dressing. Became dusky at latter part of operation; died suddenly. P.M.—No peritonitis; upper one third small intestine distended, lower two thirds collapsed. Ileum and lower part of jejunum adherent by old fibrous bands. Mesentery much shortened by shrinking of these. Omentum puckered, a long band-like process attached to right side lying in right hypochondrium with a ligature on it. The other end also ligatured found on left side of pelvis 1½ inches from symphysis. Lungs congested. Aortic valvular disease and left hypertrophy. No cause for the old peritonitis discovered; apparently simple.

Female, æt. 26, married. Attack of peritonitis after previous confinement. Obstruction 4 days, pain in region of navel 3 days, vomiting 2 days. On admission, even distension, pain, stercoraceous vomiting, constipation, decrease in amount of urine; pulse 128, temp. normal. Median abdominal section. Much brownish fluid in peritoneal cavity. Two bands ligatured and divided in pelvis, and a constricted knuckle of small intestine freed. Spray; iodoform and salicylic wool dressings. Cavity sponged out. Relieved by operation, but signs of peritonitis developed, treated by opium, leeches, and an ice-bag. On fourth day bowels opened by enema, and during night she miscarried (3 months' fœtus). On fifth day restless, violent, sick; temp. 100°. Sank rapidly, and died at night. P.M.—Wound slightly adherent, and coils of intestines adherent to wound and each other; pus in cavity. Point of constriction well marked; intestine above still dilated. Bands bearing ligatures found attached to sigmoid flexure and external extremity of left round ligament. Adherent placenta in uterus. Large patches of pneumonia in both lower lobes of lungs.

Chronic intussusception.—Female, æt. 47, married (notes deficient). Protrusion of ileo-cæcal valve at anus. Abdominal section; large masses of putty-like fæces in large intestine, and an invagination at valve. During manipulation gut ruptured over one of the fæcal masses, and as the intussuscepted part of bowel could not be drawn out a portion of intestine was excised with it, and the ends

brought up to the abdominal wound and sutured there. The patient died 2 days later. P.M.—Peritonitis, intestines near wound coated with lymph, dirty purulent fluid in cavity. Lower two thirds of right lung consolidated. Old pleuritic adhesions.

Tubercular ulceration of fauces.—Female, æt. 14. No family history of phthisis; 20 months tuberculosis of skin; 18 months enlarged glands in right side of neck, also swelling in groin; 2 months glands of left side of neck enlarged, sore-throat, and aural discharge with deafness. On admission glands of neck much enlarged, discharge from ears, ulceration of hard and soft palate and of epiglottis. The ulceration extended steadily involving larynx proper and œsophagus, and a well-marked lupus of cheek developed. Steady rapid progression was accompanied by gradual loss of strength, and she died after 240 days' stay in the hospital. P.M.—Much emaciated. General caseation of lymphatic glands, pulmonary phthisis, perihepatitis, tuberculosis of pia mater, tubercular ulceration of intestines, tubercles in spleen and kidneys (see 'Path. Soc. Trans.,' vol. xxxviii).

GENITO-URINARY SYSTEM.

Hydrocele.—Males 13. C. 11, R. 1, U. 1. Two of cord. Male, æt. 15, reducible. Incised, and peritoneum stitched to skin, opening into belly filled with iodoform plug. Male, æt. 16, not reducible. Same operation. Discharged well after 19 and 22 days respectively. Eleven of tunica vaginalis. Congenital 2. In one case hæmorrhage into sac after a strain; tapped, and half a pint of blood evacuated. Four treated by incision and suture of sac to skin. In one of these, a congenital case, pillars of external ring sutured. All done under spray, iodoform and salicylic wool dressing. One case suppurating after tapping laid freely open; 2 injected with glycerine and carbolic acid 1—10; 2 injected with Tr. Iodi; 1 refused treatment, and 1, who had been previously injected with glycerine and carbolic acid, was sent out relieved to await further change.

Chronic ovaritis.—Oöphorectomy. Female, æt. 36, married. Pain and menorrhagia for 2 years, following birth of last child. Quite unable to get about or attend to ordinary duties. Double oöphorectomy, no adhesions, cyst in left ovary; silk ligatures cut short for broad ligament; 5 inch incision, spray, iodoform and salicylic wool dressing. Dressing on sixth day, slight suppuration of 1 stitch-hole. On eighth day all sutures removed. Left hospital cured on forty-first day after operation.

Varicocele.—Males 20. C. 17, R. 1, U. 2. One ligatured subcutaneously in 2 spots, 16 excised. In all cases spray used, and iodoform and salicylic wool dressings. In 3 cases suppuration occurred, in 1 orchitis, in 2 troublesome hæmorrhage into scrotum, all cured.

Gonorrhœa.—Male 1, females 21. C. 20, R. 2. Bubo 2; phimosis 1; warts 1; chancre 1; pediculi 1; labial abscess 1; ovaritis 1; furuncle 1; scabies 2; eczema 1; scarlet fever 1; cretinism 1.

Chancre.—Males 3, females 7. C. 10. Bubo 2; phimosis 2; circumcision 2; vaginal discharge 3.

Urethral stricture.—Males 43. C. 35, R. 5, U. 1, D. 2. Traumatic 2; after gonorrhœa 32; 9 not stated. Old internal urethrotomy 1; old perinæal section 1; perinæal abscess 7; fistulæ 6; cystitis 3; epididymitis 1; renal disease 2; retention 1 (during treatment); extravasation 1 (during treatment); bedsore 1; uræmia with convulsions 1; phimosis 2; incontinence 1; hemiplegia 1; hypospadias 2; phthisis 1. Treated by interrupted catheterisation 20; continuous catheterisation 10; internal urethrotomy 3; external urethrotomy 1; preprostatic perinæal puncture 4. Left passing No. 12, 13; No. 11, 4; No. 10, 7; No. 9, 2; No. 8, 6; No. 7, 2.

Retention of urine.—Males 16. C. 11, R, 3, D. 2. Ten due to stricture of urethra, all treated by catheterisation; in 5 the catheter was tied in. Left passing No. 8, 3; No. 9, 1; No. 10, 3; No. 12, 2. Cystitis in 2; several rigors during treatment 1. Six due to enlargement of prostate; 1 of these died after an exploration of bladder, 1 case due to stricture died after preprostatic puncture (see below).

Extravasation of urine.—Males 3. C. 2, D. 1. Two successful cases due to old stricture, both treated by perinæal section, in 1 urinary fistulæ existed, and in 1 troublesome secondary hæmorrhage occurred from perinæal wound.

Fatal cases.

Stricture.—Male, æt. 55. Gonorrhœa 8 years previously. Symptoms of stricture some months only. Retention incomplete, sometimes dribbling for last 3 weeks. No previous instrumentation. No catheter could be passed, and as patient was suffering severely a preprostatic puncture was done on the twentieth day. Never rallied from shock of operation, and died on third day. No. P.M.

Male æt. 46. Gonorrhœa 7 years previously, symptoms nearly ever since. Chronic distension, penile stricture. Stricture divided with Maisonneuve's urethrotome, catheter not introduced. No. 8 passed next day, and bladder washed out with boracic lotion—this repeated daily. Condition became worse, signs of uræmia appearing, and he died. P.M.—Stricture $2\frac{1}{4}$ inches long in penile portion, due to thickening of urethral wall, opacity and slight thickening in membranous portion. Abscess of left lobe of prostate. Acute cystitis on old, pyelitis, suppurative nephritis of left kidney, right kidney granular. Bronchitis.

Enlarged prostate.

Male, æt. 61. Symptoms 1 month only, admitted with retention, died on sixth day. P.M.—Enlarged prostate, hypertrophy of bladder, cystitis, pyelitis, cysts in kidneys.

Male, æt. 53. Admitted with retention. Symptoms of enlarged prostate 6 months. Urine contained a considerable quantity of blood. Urine offensive, still containing blood, and patient suffering severely, a perinæal exploratory urethral puncture was done on the seventeenth day; no improvement followed. He vomited frequently and died on the sixth day. No. P.M.

Male, æt. 86. Symptoms 16 years. Admitted with cystitis. Treated by catheterisation and washing out bladder with boro-glyceride. Epistaxis. Very feeble. On seventeenth day parotid bubo formed, and on twentieth day he died. P.M.—Enlarged prostate, cystitis, granular kidneys, suppurative nephritis.

Male, æt. 73. Signs of enlarged prostate some months only. Admitted with a distended bladder; 40 ounces of urine drawn off by supra-public aspiration. Afterwards catheter readily passed, and bladder washed out daily. Frequent high temperatures, sank gradually, and died on twenty-fourth day. P.M.—Enlarged prostate, cystitis, pyelitis, suppurative nephritis.

Extravasation.—Male, æt. 55. Symptoms of stricture 30 years. Extravasation 6 days. Numerous incisions on admission, next day drowsy, afterwards delirious. Sank and died on sixth day. P.M.—Stricture 4 inches from meatus, 3 lines long; urethra dilated behind, hypertrophy of bladder; kidneys healthy, pelves dilated; emphysema of lungs, fatty liver.

Renal calculus.—Males 6. R. 4, D. 2. Three cases, doubtful, not operated on, and discharged relieved. Three operated on, 2 died.

Male, æt. 17. Five years' history of pain in left lumbar region and hæmaturia on exertion. Lumbar exploration 1 year before admission by Mr. Willett unsuccessful. Patient was sounded and kept at rest. Suffered with pain and vomiting on fifty-third day. Abdominal exploration of ureter decided on. Two and a half inch median incision. Examination of bladder and ureters negative. Spray; iodoform and salicylic wool dressings. Discharged relieved but still suffering pain at times on fortieth day.

Fatal cases.

Male, æt. 55. Symptoms, pain and hæmaturia, lasting 2 years. Pain severe; tenderness in left lumbar region. Seldom free from pain. On eighteenth day lumbar exploration. As room was deficient the oblique incision was crossed by a vertical one. Peritoneum being opened it was thought better to perform nephrectomy. Renal artery and vein ligatured separately with silk cut short. On division of ureter a flattened calculus found at junction of ureter with pelvis. Ureter dropped in. Iodoform and pine-wood bag dressings. Patient died of collapse 16 hours later. Four ounces of urine passed after operation. P.M.—Soft clot in renal artery. Right kidney fairly healthy. Peritoneum normal. Atheroma of aorta. Pulmonary emphysema.

Male, æt. 22. Urethral stricture and fistula following trauma 4 years previously. Three months before admission strained his right side violently; pain followed, and a week later a swelling noted in belly to left of umbilicus. On admission elastic swelling extending from right lumbar region, dull, painful, tender. Pus in urine. On twenty-eighth day one ounce of thick pus drawn off by aspirator in right loin. On thirty-third day lumbar exploration. Oblique incision. Nephro-lithotomy. Pus in pelvis. Calculus of mixed phosphates $3\frac{1}{2} \times \frac{1}{2}$ removed. The patient did well for first 12 days, the wound uniting, and a fair amount of urine being passed, the latter still containing much pus. On twelfth day temp. rose to 104°, and later evident signs of pyæmia developed, and he died thirty-eight days after the nephrotomy. P.M.—Body emaciated, recent adhesions between right kidney and liver. Kidney, a multilocular sac containing both uric acid and phosphatic calculi, very thin layer of secreting tissue, capsule thickened and adherent to surrounding tissues. Ureter healthy. Left kidney healthy, but large. Bladder somewhat hypertrophied. Spleen large. Enteritis throughout jejunum and ileum. Lungs, infarct in right lower

lobe. Abscess over dorsal vertebræ, extending from first to tenth, not continuous with inflammatory exudation around kidney.

Vesical calculus.—Males 10, females 1. C. 8, R. 1, U. 1, D. 1. For ages and duration of treatment see Tables II and III. Phosphatic 5, urates 4, oxalate 1. Nature of 1 undetermined. One case transferred to medical side with general anasarca and stricture. In one of the phosphatic, lithotrity was performed for the third time; in 1 case a fistula existed, and the patient had been treated by continuous catheter; in 1 the nucleus was a French catheter; in all 3 lithotrity was successfully done; 1 case suffered with incontinence; 1 had an anchylosed knee. One, the lithate of ammonia case, was a native of Bedfordshire; the uric acid case of Surrey; the oxalate of lime of Surrey; the two latter Walworth and Battersea respectively. The uric acid case had passed several calculi *per urethram*. *Treatment.*—Left lateral lithotomy in 2 cases; both did well, but 1 left with a fistula, and in the other the rectum was accidentally wounded. Lithotrity was done in 4 cases, in each at one sitting; in the case with catheter nucleus, the instrument was removed in several fragments.

Fatal case.—Male, æt. 57. Resident in Bedford. Signs 6 months. Lithotrity at one sitting; stones multiple, phosphatic, with uric nuclei. Died on second day. P.M.—Kidneys atrophied. At upper part of right wall of bladder a sloughing area; from this point spread an extensive pelvic cellulitis. Early peritonitis. Some fragments of phosphatic calculus in bladder.

Supra-pubic lithotomy.—Three cases.

Male, æt. 3½. Eight months' history. Bladder washed out and distended with boro-glyceride solution of 5 per cent. Catheter held in position. Rectal bag used. Two and a quarter inch incision. Silk threads passed prior to opening bladder to hold it up. Stone removed by forceps (oxalate of lime one third of an inch in diameter). Wall of bladder united with three Lembert's stitches and external wound closed. Healed *per primam* in 7 days. Iodoform and salicylic wool dressings. Passed urine naturally after first 24 hours.

Male, æt. 60. Eight months' history. Bladder washed out with boro-glyceride and distended with 10 ounces. Rectal bag used. Three and a half inch incision. Catheter held in. Stitches passed before incision of vesical wall. Stone (soft phosphatic) removed in fragments with forceps. Wall sutured, but drain into bladder left. Dressed with iodoform and salicylic wool. On second day drain shortened, and No. 10 black catheter tied into urethra. No urine passed from wound after ninth day, and patient left well on the thirty-second day.

Male, æt. 72. Twelve years' history of bladder trouble. Enlarged prostate. Bladder washed out and distended with 8 ounces boro-glyceride. Three and a half inch incision. Two calculi (hard stones encrusted with phosphates, 969 and 945 grains) removed with forceps. Wound unclosed. Cystitis improved rapidly, also patient's general condition. It was thought advisable to dilate wound at end of 6 weeks, but it was found impracticable to keep it open, and he left on the ninety-fourth day cured as far as his calculus was concerned.

Urethral calculus.—Two cases. Both removed by perinæal incision. One of interest as a previous perinæal incision had been fruitless, the stone which lay in a pouch not having been found.

Pyonephrosis.—Females 2. R. 2.

Female, æt. 46. Symptoms of carcinoma uteri 6 months. Tumour in right loin noticed 3 weeks later. Tumour varies in size. Aspirated, a pint and a quarter of dark smoky fluid (sp. gr. 1008, little albumen, and no odour of urine or trace of urea) drawn off. Tumour refilled, and 15 days later it was exposed by a vertical lumbar incision at edge of quadratus, incised, and the margins sutured to the skin. Spray; iodoform and salicylic wool dressings. Patient discharged relieved 33 days after operation.

Female, æt. 21. Symptoms 1 year. Tumour in left loin 6 weeks. Much pus in urine, and considerable vesical irritation. Incised by oblique lumbar incision. Ten ounces of pus evacuated and drain introduced. Left relieved 64 days later, tumour gone, no discharge of urine from loin, little pus in urine, but irritability of bladder persisting.

LOCOMOTORY SYSTEM.

Hip-joint—

Arthritis.—Males 31, females 27. C. 9, R. 41, U. 2, D. 6. In 6 a tubercular family history; history of acquired syphilis 1; congenital syphilis 2; in 26 a history of trauma; 1 followed an attack of rheumatism; 1 had a brother with hip-joint disease; in 1 coexisting mischief at lower end of femur; in 1 there was independent disease of the ilium. In 11 sinuses existed; unopened abscess in 16; anchylosis in 10; pathological dislocation in 11. In the cases in which excisions were performed the disease was probably primary in the femur in 16, in the acetabulum in 6; of the latter 2 died. *Duration.*—Under two months 3; under six months, 7; under twelve months 18. Chronic varying from 1 year to 22 years, 29; 1 not reported. One case suffered with hæmaturia; 1 herpes zoster; 1 continuous diarrhœa; 1 diphtheria. *Treatment.*—Seven treated with long outside and extension, the others with double Thomas and extension; 1 leather splint; 6 plaster of Paris. Incision of abscess prior to excision 4; in 2 of these connection with hip established later. Excision in 21 cases; of these 9 C., 8 R., 1 U., 3 D. In addition, 1 case of division of neck of femur in an open wound followed by removal of head died (see below). Shortening noted in 7 cases of successful excision; 1 inch 3; 1½, 2; 2, 1; 3½, 1. One case of excision followed by Jordan's amputation proving fatal, and in 1 case a wasted limb was removed through the knee-joint after excision. All the above cases were such as would be classed under the heading of strumous disease. In 6 cases of excision, examination showed tubercle; in 1 no tubercle could be found. One case typical dry caries. One case contracted diphtheria and died (see below). Of the 2 unrelieved cases, 1 was removed by parents on suggestion of amputation; 1 was transferred to the medical side, with ascites.

Fatal cases.

Female, æt. 12. Mother died of phthisis. Signs of congenital syphilis. Six months' history. Abscess opened, later, hip excised. Disease probably primarily pelvic, large loose sequestrum in acetabulum. Extensive suppuration and burrowing with increasing exhaustion, 28 days later Jordan's amputation of thigh followed by death on ninth day. P.M.—Very emaciated. Large defect in pelvic

wall, the peritoneum being only separated from the amputation cavity by soft tissue. Unopened abscess spreading into labium. Old pleuritic and peritoneal adhesions. In lower lobe of right lung some infarcts, not suppurating or softening, and some chronic pneumonia. Other organs anæmic. No lardaceous change. Meningitis over convexity of left hemisphere in anterior two thirds.

Male, æt. 4. Seven months' history, following trauma. Rapid advance of disease. Much pus in hip-joint, sequestrum the size of a half walnut in acetabulum, cartilage of femur present but loose. (Well-marked tuberculosis of bone and synovial membrane on examination). Died with signs of acute lung mischief 16 days after operation. No P.M. allowed.

Male, æt. 4. Symptoms 1 year. Excision 6 months later, disease apparently femoral, died 25 days later with symptoms of tubercular meningitis. P.M.—Acetabulum carious. Basal meningitis, miliary tubercles in fissure of Sylvius, great excess of fluid in ventricles. Tuberculosis of the bronchial glands, lungs, liver, and kidneys.

Male, æt. 17. Nineteen months' history, signs of phthisis on admission. Hip incised and disease of pelvis discovered. Hip drained, died, 21 days later, of exhaustion, bedsores. P.M.—Very emaciated. Femur atrophied, fractured in exposing joint for examination, on section tubercles visible. General miliary tuberculosis of lungs from apex to base. Tubercle of spleen.

Male, æt. 42. Thirty years' history. Admitted with anchylosis in flexed position and sinuses. Sinuses slit up, and femur divided below trochanters, continuous profuse suppuration, escape of sequestra, and sequestrotomy followed by death on eighty-seventh day. P.M.—Very emaciated, large bedsore. No marked visceral changes, no signs of lardaceous degeneration.

Acute suppurating arthritis.—Males 2. D. 2.

Male, æt. 28. Five weeks' history, no trauma. Abscess in adductor region. Flexion and rigidity at hip-joint. Abscess opened on sixth day. On twenty-fourth day signs of pleurisy. Died on twenty-ninth day. P.M.—Body well nourished. Suppuration in sheath of left psoas, some periosteal new bone in venter ilii. Pus in hip-joint. Cartilage on head of femur thinned. Double empyema. Lungs collapsed, no infarcts.

Male, æt. 15 (see Pyæmia Table, p. 407).

The 7 cases of old excision and the 3 of anchylosis were all subsequent to arthritis of a tubercular nature. In the 3 cases of anchylosis subtrochanteric osteotomy with MacEwen's chisel was performed. In 1 case returned as relieved, the operation was followed by the formation of a residual abscess.

The cases of chronic rheumatoid arthritis (1 with double anchylosis, discharged relieved) and two cases of gonorrhœal synovitis of the hip are also included in Table I.

Knee-joint—

Arthritis.—Males 13, females 13. C. 7, R. 18, U. 1. Right 11, left 15. History of trauma in 7. Family history of tubercle 3. History of syphilis 1, of acute rheumatism 2. *Nature.*—Puerperal 1, rheumatic 1, syphilitic 1, following typhoid 1, following scarlet fever 1, senile struma 1, dependent on multiple infective epiphysitis 1, probably tubercular 19. Of these 5 were undoubtedly primarily osseous in origin, in 3 deposit in femur, in 2 in tibia, 3 undoubtedly

primarily synovial, in the other cases no opportunity for forming a decided opinion. *Duration.*—Under two months 4; under six months 3; under twelve months 5. Chronic varying from 1—5 years 13; not stated 1. *Treatment.*—Excision 1, incision and drainage 2, cured; aspiration 3, amputation of thigh 6, Thomas's knee-splint 1, MacIntyre 6, extension 2, Scott's dressing 4, tincture of iodine 2, plaster of Paris 10. In one case an attack of erysipelas, in one periostitis of tibia.

Seven cases were under treatment for anchylosis. In 2 this followed acute traumatic suppuration, 2 fracture of femur, 1 tubercular disease, 1 puerperal arthritis, 1 fracture of patella. One was treated by excision (see below), 1 by amputation, 1 by osteotomy, 4 by forcible movement; 4 were cured, 2 relieved, and one died.

Fatal case.—F. æt. 42. Fractured patella not diagnosed three years previously, much pain on using knee, firm fibrous anchylosis. Excision; good fibrous union of patella found. Bones sutured with silver wire. Patient died of shock 24 hours later. P M.—No organic disease of viscera; a gall-stone.

Two cases of tabetic arthropathy of knee, male 1, female 1. R. 2.

One old excision with sinuses. Contracted erysipelas.

Subluxation of semilunar cartilages, male 1, females 2; C. 1, R. 2; splints only.

Two cases of hysterical knee relieved.

One case of loose body relieved by direct incision.

Synovitis.—Males 15, females 9. C. 10, R. 14. Right 16, left 8. History of trauma 7; confinement 1; rheumatic fever 2; congenital syphilis 1; acquired syphilis 1, vaginal discharge 1, rickets 1, anchylosis of other knee 1. *Treatment.*—Plaster of Paris 10; MacIntyre 6; Scott's dressing 4; blister 2; Pot. Iod. 6; movement 2.

Ankle-joint.—Males 5, females 4. C. 4, R. 5. Right 4, left 4, unreported 1. History of trauma in 4; family history of phthisis in 1. All cases apparently tubercular in nature. One healed spontaneously after an attack of erysipelas. *Treatment.*—Amputation of leg 1, Syme's amputation 2, incision 1, division of tendo Achillis, 1, plaster of Paris 4, Scott's dressing 2. For other affections of ankle see Table I.

Elbow-joint.—Males 7, females 5. C. 1., R. 10, U. 1. Right 7, left 5. History of trauma in 4. Two cases of senile tuberculosis (struma); 1 of chronic rheumatoid disease with suppuration; 7 of tubercular (strumous) arthritis; one lupus of face; diphtheria 1; erysipelas 1. *Treatment.*—Leather splint 2, other splints 2, excision 4, one of which healed, others left with sinuses; incision of joint 2; 1 refused treatment. Four other excisions of elbow were done; 2 for compound fracture both partial (primary), 2 for anchylosis due to old fracture (see Table III). For other joint cases see Remarks, Table II.

SUMMARY OF INJURIES.

GENERAL INJURIES.

Burns.—Males 12, females 18. C. 18, R. 1, D. 11.

Situation.—General 2; trunk 1; abdomen 1; chest 1; face 4; face, chest, and arms 2; face and arms 4; face, arms, and legs 2; lower extremities 2; legs, back, and arm 1; trunk and upper extremity 7; trunk and lower extremity 3.

Causes.—Ignited clothing 24; ignited hair 1; fall into fire 1; gas explosion 1; paraffin lamp explosions 3.

Treatment.—Primary, carron oil 27; olive oil 1; iodoform and vaseline 2.

Complications.—Measles 1; double ectropion 1; empyema 1.
(Female, æt. 4. Burn of face, chest, and arm. The chest was tapped. Entire stay in hospital 31 days. C.)

Fatal.—From collapse. Males, æt. 1, 2, 4; females, æt. 73, 1, 44, 4. From exhaustion. Males, æt. 7 months, 2; females 73, 5.

Scalds.—Males 22; females 10. C. 20, R. 2, U. 1, D. 9.

Situation.—General 3; head and neck 3; mouth, face, and chest 1; face, chest, and arm 2; head, arm, and shoulder 1; face and arms 3; upper extremity 1; chest and upper extremity 1; neck and back 1; back, face, and arms 1; back, arms, and legs 2; abdomen, feet, and legs 3; fauces 5; chest and fauces 1; foot 1; lower extremity 1; trunk 2.

Causes.—Boiling water 23; boiling milk 1; boiling fat 1; boiling broth 1; boiling tar 1; steam 5.

Complications.—Œdema of glottis 2.

Treatment.—Primary carron oil 20; vaseline 1; iodoform and vaseline 5; tent and steam kettle 2; cold compresses to throat 1; tracheotomy 1; Lotio Soda Chlor. 2.

Fatal.—From collapse. Males, æt. 5, 10 months; females, æt. 1, 2, 1, 1. One with coffee-ground vomit during the 24 hours he lived. From exhaustion. Males, æt. 1; female, æt. 1. One male, æt. 3, on day of admission after tracheotomy for œdema of glottis.

No post-mortem examinations made on any burns or scalds.

Snake poison.—Male 1. C. 1.

Æt. 14.—Snake 18 inches long, lightish brown in colour, with black stripes and spots.

Bitten just below thumbnail at 4 p.m. Swelling followed at once, in three quarters of an hour swelling and dusky colour had reached wrist. Pain and heat, no numbness; half an hour after bite patient felt faint and breathed rapidly, but feeling passed off. Was driven three miles to a doctor's, who gave him a draught.

Came to hospital 7½ hours after bite, walked in, looked pale. Swelling and duskiness extended to lower third of forearm, which was painful, the hand was tender, as were also the inner side of the elbow and axilla. Wound scarcely visible. Patient felt rather faint, and respiration was still increased in frequency. Temperature normal. Some Sp. Ammon. Arom. ʒss and brandy ʒij was administered. Patient slept well, and no further general symptoms were noticed.

The swelling increased, spreading to elbow on the second day, and the axillary glands then continued tender. The limb was dressed with warm lead lotion. After this the swelling rapidly decreased, although the discolouration lasted till the seventh day. On the ninth day he left well.

LOCAL INJURIES.

Scalp wounds.—Males 23, females 8. C. 30, U. 1.

Complications.—Hæmorrhage 3; bared bone 4; contusion of back 2, of shoulder 2, multiple 1; fractured ribs 1; bleeding from both ears one day before admission 1; erysipelas 2; delirium tremens 1.

Concussion.—Males 70, females 15. C. 85. Severe 5.

Complications.—Hæmorrhage from ear 4; one of these suffered with chronic otorrhœa another had been under treatment for fractured base at Guy's Hospital two months previously; hæmatoma of scalp 3; scalp wound 14; scalp wound with bare bone 4; wound of cheek 1; wound of face 1; contusion of face 2, of back 1, of hip and shoulder 1, of ankle 1; fractured acromion 1; epilepsy 1. One case, female, æt. 13, admitted 10 days after accident, delirium before admission, left in fourteen days. C. One male, æt. 36, admitted 5 days after accident, had delirium lasting 10 days.

Concussion followed by inflammatory symptoms.

Male, æt. 28. Fall from cart, taken home unconscious, delirious during night, and vomited occasionally. On admission pain in head and back of neck, extremely tender over scalp. Drowsy; any question has to be repeated. Pupils equal, moderate size, pulse 80, temp. 101°. Scalp wound in occipital region, sutured and dressed with iodoform.

Six leeches put on nape, and an ice coil to head. During next few days pulse fell to 52, and after second day temp. fell to normal. No optic neuritis. Left cured on sixteenth day.

Male, æt. 36. Knocked down by a cab five days before admission, taken home, remained insensible 12 hours. When admitted, delirious, and quite unaccountable for words or actions. Head shaved, ice coil applied. No inflammatory or paralytic symptoms. Left cured on nineteenth day.

Male, æt. 32. While intoxicated fell from a cart. On admission 2 hours later, semi-conscious, inarticulate, breathing stertorous, pupils equal, active. Slight hæmatoma in occipital region. Ice-bag, calomel gr. v. Became quite unconscious shortly after admission, vomited, passed motions into bed, and swallowed with difficulty. On the third day some weakness of the left side noted, and on the fourth day temp. reached 100°, pulse 70—80, tender over right mid-parietal region. During next 2 days loss of power increased, but on the fifth day he could draw up right leg. Incontinence of fæces continued, vomiting ceased. Temp. subnormal, pulse 68. On sixth day spoke, and seemed sensible; he continued to speak at intervals, and on the ninth day, after trying to get up for some time, became violently delirious, temp. still remaining normal. On twelfth day much improved, answered slowly but rationally, but volunteered no remark. Well-marked double optic neuritis noted. Temp. still normal. Blister to neck, to be dressed with Ung. Hydrarg. Still some weakness of face. Steady improvement. Left well on thirty-sixth day, except as to his eyesight.

Male, æt. 28. Fell on pavement, striking head. Admitted shortly after, unconscious and breathing stertorously, pulse full, slow, soft, pupils equal, active. Calomel gr. v, Haust. Sennæ ℥iss, ice-bag. Vomited during the first day of residence, and improved as to his sense being capable of being roused. Vomiting continued till the third day, still remaining semiconscious, and temp. ranging to 101°. On sixth day temp. normal, but on eighth became actively delirious, temp. rising to 99°. Next day unconscious, restless, pulse slow, tendency to stertor. Five leeches applied to neck. On the tenth day he became more rational, answering sensibly, although volunteering nothing. Pulse 72, temp. normal. Delirious again at night. Later steady improvement, no optic neuritis. Left cured on forty-ninth day.

Male, æt. 40. Fell from cart, became unconscious, but recovered before admission. Given calomel gr. v, after which he vomited, Ice-bag, and scalp wound dressed with iodoform. He remained in a somewhat drowsy condition, temperature occasionally reaching 102·6° F., till the fifth day, when he had a severe general epileptiform attack lasting 10 minutes. Afterwards drowsy and complaining of frontal headache. Some changes were noted in both optic discs, indicative of recent neuritis. The fits continued at intervals, sometimes 4 in an hour. Head shaved, 8 leeches applied. A blister rose on each heel, but no loss of power or sensation; condition altered little till tenth day, when fits ceased, temperature ranging from 99—100°. After this occasional fits and active delirium, requiring restraint; sleeping badly. On fourteenth day again rational, complaining of headache, but still violent at night. The motions throughout have been passed involuntarily. Became quite sensible of the twenty-fourth day, and improved steadily, going to a convalescent home on the fifty-first day.

Fractures of the skull—Vault—

Simple.—Males 2. D. 2.

Male, æt. 3½. Run over. Lived 2 days after admission. Almost entirely un-

conscious. No sickness. Pulse 148—180. Respirations 48, noisy, no stertor; passed urine and fæces into bed; serous discharge and blood from left ear, small in amount; large hæmatoma in left temporal region. P.M.—Very extensive horseshoe fracture, involving both parietal and temporal bones, and extending into both anterior and middle fossæ of base.

Male, æt. 28. No clinical notes; died immediately after admission. P.M.—Depressed fracture in left parietal bone, with fissures extending into occipital and petrous bones. Median fissure of sphenoid. At point of depression in parietal region laceration of dura mater and brain. Tip of right temporo-sphenoidal lobe severely contused.

Simple depressed.—Male 1. C. 1.

Male, æt. 4. Right parietal bone. Slight concussion. Depression tangible when he left. No symptoms.

Compound.—Males 2. C. 2. Æt. 6, fissure, æt. 32, into sinus; both of frontal bone.

Compound depressed.—Males 5, females 1. All 6 cases trephined and all recovered.

Male, æt. 30. An iron bracket, weighing ½ cwt., fell 35 feet and struck him on the head, insensible about 15 minutes. No further symptoms. Starred wound over hinder part of left parietal bone leading to a circular depressed fracture. Trephined soon after admission, crown removed somewhat to left of depressed spot, some fragments of inner table imbedded in dura mater removed; scalp shaved, 2½ per cent. carbolic solution used, wound dressed with iodoform, sutures and a deep drain. Tubes gradually shortened and removed on eighth day. Not a single symptom throughout. Temperature 100° the night of operation, otherwise normal. Left hospital well on twenty-third day.

Male, æt. 29. Struck on head with hammer 35 minutes before admission, became aphasic about 15 minutes later, no loss of consciousness at time. On admission 2 scalp wounds in temporal region, 1 leading to a depressed fracture, triangular in outline, in left parietal bone, about 3 inches above external auditory meatus. Quite conscious but nearly aphasic, says with difficulty and indistinctly, "I can't speak," but nothing more. Trephined about 2 hours after admission; could then speak readily. A fissure spread upward from depressed point, which was about ⅛ inch below the level at the deepest point. Trephine applied to upper part of depression, dura mater intact, but some splinters of the inner table projected against it. Iodoform dressing, suture and deep drain used, 5 per cent. carbolic for disinfection, scalp shaved. No rise of temperature after first day, then up to 100°. Only symptom occasional inequality of pupils, both acting. Discharged well on forty-fourth day.

Male, æt. 15. Struck on occipital region by a large swing while in the act of stooping. Became at once unconscious. On admission bleeding freely from wound, answers unintelligibly when shouted to; pupils unequal, right larger; no stertor; pulse feeble, rapid. Depressed fracture ¾ × ½ inch just above and to left of external occipital protuberance. Trephined 3 hours after accident, several loose spicules removed, dura mater unwounded. Head shaved, 5 per cent. carbolic lotion, iodoform drsssings, sutures and deep drain. No bad symptoms except occasional vomiting for first 2 days, and restlessness. Temperature normal

after first day with 2 exceptions, then 100°. Drain removed on seventh day. Wound healed on thirteenth. Left well on fifty-sixth day with a leaden plate to shield defect in skull.

Male, æt. 20. Fell, striking head against circular saw; 2 small scalp wounds, depressed linear fracture of right parietal bone just to right of vertex. On admission could walk but dragged left leg, pupils unequal, active, had been sick. Trephined soon after admission, fracture 1 inch long, inner table depressed on a hinge, penetrating dura mater by free edge. Periosteum sutured over opening. Iodoform, sutures, 5 per cent. carbolic. Dressed on second day, drain inserted and kept in 2 days. No subsequent symptoms, delirious 1 night only. Wound closed on sixteenth day. Temp. never above normal. Left cured on thirtieth day.

Male, æt. 10. Fell downstairs striking head against corner of hamper. Unconscious for a few minutes, came round, but 45 minutes later had an epileptiform convulsion, and was sick twice. On admission conscious, no paralysis, an area of $1\frac{3}{4}$ inches square of right parietal bone comminuted, one fragment had penetrated dura mater. A large number of fragments removed. Iodoform dressing, sutures, deep drain; $2\frac{1}{2}$ per cent. carbolic used. Drain removed on second day, wound healed on ninth. No symptoms. Temperature normal throughout. Left with considerable defect in skull on forty-fifth day.

Fatal case.—Female, æt. 2. On night of admission a pale, with a projecting nail, fell and struck patient on the forehead; a piece of bone, $\frac{3}{4}$ inch long by $\frac{1}{2}$ inch wide, consisting chiefly of the inner table, was left attached to the nail when removed. On admission wound less than $\frac{1}{2}$ inch long over left frontal eminence, from which a small spicule of bone and some brain-substance protruded; two small fragments of the inner table were removed. There were no symptoms of cerebral injury. Two hours after admission chloroform was administered. The opening in the soft parts was enlarged and several more fragments were removed. The dura mater was seen to be punctured, and lacerated brain matter protruded. Washed with $2\frac{1}{2}$ per cent. carbolic solution, and dressed with iodoform and salicylic wool, the wound having been closed. The child was sick after the operation, and passed her urine and fæces into the bed, the temperature the next day gradually rising to 105°. She improved rapidly, but on fifth day hernia cerebri noted. During next 8 days child varied, at times was pale and fretful, and free suppuration continued; the hernia, however, began to decrease, and on the fifteenth day no longer protruded. Up to the thirty-sixth day improved gradually, the wound granulating healthily and decreasing in size, although continuing to pulsate. On thirty-eighth day definite signs of diphtheria of the fauces. On fifty-second day had to be tracheotomised, and on fifty-fourth day died. P.M.—Larynx, trachea, and larger bronchi completely blocked by membrane. Wound of forehead almost completely healed, defect in skull about the size of a shilling. Dura mater adherent to skull at opening, and tip of left frontal lobe to dura mater at site of wound, but it was healthy except a little pigment. The rest of the brain was normal.

Base of skull.—Males 13, females 3. C. 11, U. 1, D. 4. Crossing anterior fossa 2; mid. fossa 11; post. fossa 3. There was hæmorrhage from the ear in 3 cases, serous discharge in 2; subconjunctival ecchymosis in 1; ecchymosis over

mastoid process in 1. *Complications and sequela.*—Scalp wound 2; with bare bone 1; deafness 3; internal strabismus 1; hæmorrhage into arachnoid 1; fractured clavicle 1; wound of knee-joint 1; erysipelas 1.

Fatal cases.

Male, æt. 40. Fell in street 2 days before admission, unconscious for a short time but walked home with help, bled from the nose; was in hospital 10 days with signs of acute meningitis. P.M.—Fissure crossed left half of occipital bone extending across centre of petrous bone and nearly to apex. Much lymph on left side of pons and crus, embedding third and seventh nerves. No tubercles visible. Turbid fluid in ventricles and lymph on choroid plexuses. Small surface extravasation on second left temporo-sphenoidal convolution. A little patchy lymph here and there along post. aspect of cord. Aortic valvular disease. Gummata of liver.

Male, æt. 30. Fell down twenty steps, brought in unconscious, vomiting, and loud stertor. Died in twenty minutes. P.M.—Linear fracture of mid. fossa, crossing sphenoid parallel to direction of petrous bone. Middle meningeal unhurt. Under surface and tip of right frontal and temporo-sphenoidal lobes bruised, extravasation not extending beyond cortex. Some bruising of left temporo-sphenoidal lobe, also superficial. Food obstructing glottis. Organs otherwise normal.

Male, æt. 48. Fell from a cart, admitted unconscious, bleeding from right ear, and with convulsions; lived three and three quarter hours. Temp. rising to 107° at death. P.M.—Separation of temporo-occipital sutures on each side. Fissure three inches long in left half of occipital bone, not extending into foramen magnum. Considerable effusion of blood on surface of dura mater; both tips of frontal lobes much contused, especially the right. Right temporo-sphenoidal also contused.

Female, æt. 44. Fell down eighteen steps; taken up unconscious. On admission unconscious; bleeding from right ear; stertor; unequal inactive pupils; died in one hour. P.M.—Fracture through right petrous bone at junction of external and middle one third. Masto-occipital suture separated. Large effusion of blood in subdural and subarachnoid spaces over left cerebral hemisphere; source undiscovered.

Traumatic cephalhydrocele.—Female 1. U. 1. Æt. 4. Injury at three months, after which pulsating swelling noticed in right post. parietal region, gradual increase. Child well, but left side scarcely so well developed as right; opening in skull 3 inches by $1\frac{3}{4}$ inches. Edges of opening everted, long diameter transverse a fissure extending outward. Fluctuation and free pulsation (see Clinical Society's 'Transactions' for 1887, vol. xx, p. 253.)

INJURIES TO CHEST, ABDOMEN, SPINE, AND PELVIS.

Chest.—Wounds of chest implicating lung.—Males 2. C. 2. Both gunshot.

Male, æt 57. Admitted 2 days after receiving wound in right axillary region.

No indication of situation of bullet, but emphysema of neck and right side of chest in region of shoulder. Stayed 6 days in hospital with no bad symptoms, and left at own request.

Male, æt. 33. Self-inflicted pistol shot in second intercostal space. Collapse. Bloody expectoration. Left pneumonia. Bullet extracted from back (between scapula and spine at level of fourth space) 21 days after admission, and after subsidence of pneumonia discharged cured after 51 days' residence.

Fractured ribs.—Males 14, females 2. C. 11, R. 1, D. 4. *Complications.*—Bronchitis 1, pneumonia 1, measles 1, epilepsy 1, contusion of thigh 1, fracture of pelvis 1. Abdominal contusion followed by thrombosis extending to lower extremities 1, dislocation of acromial end of clavicle 1.

Fatal.

Male, æt. 35. Run over. Died in surgery. P.M.—From third to twelfth rib inclusive broken on right side; laceration of lung and pleura. Fracture of fourth dorsal spine.

Male, æt. 30. No clinical notes. Died on day of admission. From fourth to eleventh rib on left, and from second to tenth on right side, both inclusive, fractured. Half a pint of blood found in each pleura, laceration of upper and lower lobes of right, and of diaphragmatic surface of left, lungs.

Male, æt. 18. Run over. Died shortly after admission. P.M.—Fracture of fourth to eleventh ribs on right, and seventh to eleventh on left side, both inclusive. No laceration of pleura. Spleen in three separate pieces. Irregular rents at both cardiac and pyloric ends of stomach.

Male, æt. 44. Run over. Second to twelfth ribs inclusive fractured on right side. Died shortly after admission. P.M.—General emphysema of right side involving neck, trunk, scrotum, and thigh. Extravasated blood around pericardium. Wound of lung. One pint of blood in left pleura.

Foreign body in air passages.—Male, æt. 50. Placed an earring in his mouth to secrete it when apprehended and inhaled it one month previous to admission. Was in the hospital 16 days. Its location could not be determined, his only symptom being somewhat troublesome cough. It was expelled spontaneously with some blood during a fit of coughing on the fourteenth day of residence.

Fractured sternum.—Male 1. C. 1.

Male, æt. 31. Junction of manubrium and gladiolus, caused by fall of a wall on him. Fracture of upper ribs. Moderately severe attack of pleurisy. Discharged cured in 22 days.

Fractured spine.—Males 2. C. 2.

Male, æt. 37. Fell 4 feet, landing on his back across a plank. Fracture in lumbar region, paraplegia, and trouble with bladder on admission. Treated with Sayre's jacket. Left on thirty-fifth day at own request. Could walk with crutches, and eventually recovered completely. No deformity.

Male, æt. 46. Thrown from cart on to back. Fracture of fifth and sixth dorsal spines. No nervous symptoms. Discharged cured on thirtieth day.

Injuries to abdomen.—Wounds, simple.—Male 1. C. 1. *Complicated.*—Males 2. D. 2. Both gunshot.

Male, æt. 16. Shot in loin with a saloon gun. Wound just below twelfth rib 3 inches from spine. Much shock. Blood in urine. Wound explored 1 day after admission. Fæcal odour supposed to be due to wound of colon. Patient collapsed, and had to be removed from table. Died about 36 hours after admission. P.M.—Recent acute local peritonitis about ascending colon. A little thick pus on viscera, and some dirty fluid. A perforating wound passing from right to left present in transverse duodenum. Bullet embedded in omentum below stomach. Bruising of posterior aspect of upper part of kidney, bullet having evidently passed between it and spine.

Male, æt. 22. Shot at 2 a.m., bullet entering in nipple line 2½ inches above level of left iliac crest. Probe passed downwards and inwards one inch. No symptoms, local or general. Twelve hours later pulse 120, expression anxious, slight general tenderness of abdomen. No other signs. Five hours later vomited. At end of 36 hours nothing further, but at end of 46 hours more tenderness, thoracic respiration, pulse 140, expression anxious, tongue dry, vomited once. Abdominal section, perforating wound of sigmoid flexure, blood in peritoneal cavity, opening in gut closed by suture; died shortly after. P.M.—Blood-clots, blood-stained serum, and fæcal matter in peritoneal cavity. Internal opening 1½ inches below and ¾ inch to right of external wound. Small intestine grazed near parietal wound, two openings in sigmoid flexure secured by ligatures (put on at operation). Tissues around colon infiltrated with blood. Small non-penetrating wound of anterior wall of bladder, bullet found lodged in posterior wall of bladder.

Contusions.—Males 7, females 3. C. 9, D. 1. Complications in simple cases, Contusion of elbow 1. Hæmatoma 1; vomiting blood 1 (stools normal, only occurred once soon after admission; small quantity.) Retention of urine 1.

Male, æt. 7. Injury to left loin; run over; hæmaturia lasting one day. Discharged cured on sixteenth day.

Male, æt. 12. Died on third day after admission. P.M.—Considerable extravasation in peritoneal cavity. Liver blanched, an antero-posterior rupture extending one third depth of organ; right end of right lobe "crumbled up." No external marks of violence. Fracture of eighth, ninth, tenth, and eleventh ribs; no wound of pleura.

Contusion of perinæum.—Male, æt. 49. Fell astride a plank. Admitted with hæmatoma of perinæum and retention of urine. Patient in the habit of passing catheter for himself, and did so making a false passage. Preprostatic puncture of urethra on fifth day. Left cured on the 152nd day. No urinary extravasation followed accident.

Fractures of pelvis.—Males 7, females 2. C. 7, D. 2. One compound. Anterior superior spine of ilium 3, fissure of ilium 1. Near sacro-iliac synchondrosis and across pubes 3. *Complications.*—Bronchitis 1; hæmatoma 1; wound of thigh 1.

Fatal.

Male, æt. 3. Run over by heavy van; died shortly after admission. P.M.—Extensive extravasation of blood in pelvis and iliac regions, especially right. Fractures crossing horizontal ramus of pubes and tuber ischii. Both sacro-iliac synchondroses sprung. No injury to urethra or contained organs.

Male, æt. 44. Run over. Laceration of perinæum; died of collapse. P.M.—Fracture of horizontal ramus of pubes, and ascending ramus of ischium. Lacera-

tion of perinæum, urethra and organs unhurt. Small hydatid cyst of liver. Early interstitial nephritis.

Rupture of bladder.—Males 3, female 1. C. 2, D. 2.

Male 33. Ran against a post, which struck him in region of umbilicus, was senseless for a short time, then walked home. Vomited once, could pass no water during the evening. Applied at hospital 15 hours after accident. Retention, pain in abdomen, tenderness, distension of belly, shifting dulness in flanks. Catheter withdrew 4½ oz. urine tinged with blood. Two and a half hours later 95 oz. urine drawn off with effect of lessening dulness in flanks. Abdominal section decided on and performed 18¼ hours after accident. Urine evacuated from peritoneal cavity, and a rent 4 inches in length found at posterior part of abdominal surface of bladder. The lateral false ligaments were freely divided to allow wound to be drawn forward, and it was closed by 15 Lembert's stitches of silk. The peritoneum and intestines were normal. The cavity was washed out with boracic solution at 98° F.; the bladder distended and wound found to be secure, a Bantock's tube was introduced, the abdominal wound closed, and a catheter placed in urethra. The operation lasted two hours, and was done under carbolic spray; iodoform dressings. The plug was removed from the catheter every two hours for the first twenty-four; later a flexible tube was affixed to allow constant drainage. Catheter removed on second day, patient passing urine without pain on third day. The Bantock's tube was removed, having proved hardly necessary. Dressings on first, second, third, fourth, sixth, seventh, eighth, tenth, twelfth, sixteenth days, after which the superficial surface was dressed daily. Some suppuration of the wound around the spot at which the large drain was passed; cicatrisation complete on twenty-eighth day. The progress was uninterruptedly satisfactory.

Male, æt. 37. Weighed 15 st., fell 18—20 feet on to buttocks. He walked to a cab and came 4 miles to the hospital. As there were no symptoms, either local or general, and no shock, he was sent home with a flannel bandage around him. He could, however, pass no urine during the night, and when seen by his club doctor the next morning, 22 hours after the accident, he was in pain and the abdomen was tender. He failed to pass a catheter, and the patient again travelled 4 miles in a cab to the hospital, arriving about 24 hours after accident. The house surgeon drew off 6 oz. of turbid coffee-coloured urine. He had pain, lay upon his back with the knees drawn up; the abdomen was tender, especially in the epigastric and hypogastric regions, and there was shifting dulness in the flanks. He looked anxious, and after admission the symptoms became rapidly more severe; 3 oz. of dark bloody urine were again drawn off, and abdominal section decided on 26½ hours after the accident. On opening belly a large amount of clear urine escaped (50 oz. collected). An oblique rent on the back part of the abdominal surface of the bladder 2 inches in length was found; peritoneum normal. The lateral false ligaments were divided and bladder drawn forward and the rent closed with 12 silk Lembert's stitches. Peritoneal cavity and bladder washed out with warm boracic lotion (98°); the bladder distended and wound proved secure. The belly was then closed, a small split drain being placed in lower angle of wound only. Operation done under spray lasting 2 hours. Iodoform dressings. Catheter removed. Patient passed water naturally 3 hours after operation. A catheter passed afterwards was not retained as urine flowed by the side. Dressings on first, eighth, and eleventh days, sutures removed on eighth.

After eleventh day, boracic dressing only. Wound wholly cicatrised on twenty-fifth day. Temp. rose to 100° during first three days, otherwise progress uninterruptedly satisfactory.

Fatal.

Male, æt. 25. Fell from seat of van, and the wheels passed over abdomen. Admitted in pain, but he walked to the hospital. Urine drawn three times, each time containing blood; catheter then tied in. Patient died 36 hours after accident. P.M.—No marks of injury to abdominal wall. Recent acute peritonitis in lower half of belly; blood-stained fluid in pelvis. Rent 1 inch long in posterior part of abdominal surface of bladder, closed by a loosely adherent coil of small intestine.

Female, æt. 26. No history of nature of violence, ? blows. On admission, some days later, collapse, anxious look, distended tender belly, constant diarrhœa, urine retained; when drawn pus and mucus, no blood. Died on third day after admission. P.M.—Recent general peritonitis, turbid pus in pelvis. Rent in abdominal surface of bladder, reaching 1½ inches back from summit. Acute cystitis clot in uterus; pus in Fallopian tubs; cystic ovaries.

INJURIES OF THE UPPER EXTREMITIES.

Wounds.—Arm.—Males 4, females 1. C. 3, R. 2. *Complications.*—Division of biceps 2; of triceps 1; brachial artery bared in 2. The two cases returned as relieved left before granulation was completed.

Forearm.—Males 9, females 5. C. 14. *Complications.*—Ulnar artery divided in 3; radial in 4; interosseous in 1; ulnar nerve divided in 2. Division of tendons: flex. carp. uln. 2; flex. carp. rad. 2; flex. sublimis ad min. digit. 1; palmaris long. 2; supin. long. 2; ext. carp. rad. l. 1; ext. comm. digit. 1. All tendons sutured. Patients left with wounds healed, but no ultimate record to hand. All arteries ligated; in one case, where ulnar and interosseous were wounded, brachial was successfully ligatured for sec. hæm.

Hand.—Males 2. C. 2. One circular-saw wound involving bone; amputation of little finger. One gunshot of palm; bullet removed from beneath skin of dorsum.

Dislocations—

Humerus.—Males 5, females 7. C. 9, R. 3. Right 11, left 1; 1 caused by direct violence; subcoracoid 11; subglenoid 1. Old 7; 3 weeks 2; 4 weeks 3; 8 weeks 1; 12 weeks 1. Three unreduced 3, 8, and 12 weeks respectively. *Complications.*—Compound fracture of shaft of humerus, male, æt. 70. Fracture of tibia and fibula 1; of femur 1. Male, æt. 68, admitted for a subcoracoid dislocation of 3 weeks' standing, following a fall on elbow, returned 3 weeks after reduction with a spontaneous subspinous dislocation. All reduced by manipulation under an anæsthetic, except the 3 unsuccessful cases, in which extension was also tried.

Clavicle.—Males 3, C. 2, R. 1. Right 1; left 2. Luxation of acromial end

In 1 case fracture of other clavicle, wound of orbit, &c. The cases entered as cured left the hospital, with the bones in good position, after stays of 15 and 14 days respectively.

Forearm.—None uncomplicated. One case of fracture of radius; the head was displaced backwards, and in 1 case of fractured internal condyle of the humerus both bones were displaced backwards.

Thumb.—Males 2, females 1. C. 3. One carpo-metacarpal; 2 metacarpo-phalangeal, 1 dorsal, 1 palmar. R. 2, L. 1. One compound. Male, æt. 71, dressed with iodoform and discharged well on third day. One of 11 months' duration, male, æt. 15. Excised.

Finger.—Male 1, C. 1. Æt. 8, R., phalanx ant. Tenotomy and incision of joint.

Fractures.—Scapula.—Male 1. C. 1. Æt. 28. L. Direct violence, across venter below spine.

Clavicle.—Males 10, females 2. C. 11, D. 1. Right 5; left 5; double 1; indirect violence 11, direct 1; 1 done 6 days before admission; 3 comminuted. *Complications.*—Scalp wound 1; fractured ribs 1; displacement of other clavicle 1; concussion 1. The one death referred to under compound fracture of tibia and fibula.

Humerus.—Males 8. C. 8. Right 5; left 3. Direct violence 3, indirect 5. Internal condyle 1 (3½ months' standing); ext. condyle 1. One implicating elbow. With coexisting fracture of radius and ulna 1; of femur 2; scalp wounds 2; epilepsy 1; backward displacement of radius and ulna 1.

Compound and compound comminuted.—Males 7. C. 7. Right 3; left 4; indirect violence 6, direct 1. One caused by circular saw; extending into elbow 2; 1 internal, 1 external condyle; 1 complicated by caries of humerus with an old sinus.

Forearm.—Radius and ulna.—Male 1. C. 1. With backward displacement of head of radius.

Compound.—Female 1. C. 1. Æt. 30. Caused by a fall, fracture in middle third; injury to soft parts not markedly severe. Dressed with iodoform and plaster-of-Paris splint. Inflammatory symptoms commenced at once, accompanied by rapidly extending gangrene, approaching gangrène foudroyante in character. Amputation of arm at junction of superior and middle thirds 5 days after accident. Left cured at the end of 17 days.

Compound of ulna.—Males 2. Æt. 14. With fractures of carpus and wound of elbow. Amputation of arm in lower third. Male, æt. 41. Olecranon separated by a band saw. Elbow freely opened, olecranon removed; discharged cured on thirty-ninth day; could flex arm to right angle and fully extend; pronation and supination four fifths of normal range. Wound firm.

Hand.—Males 16, female 1. C. 17. Compound 7; compound comminuted 9. Carpus and metacarpus both affected in 2, treated by amputation of forearm; metacarpus 14, in 13 of which amputations were performed. Mostly cog-wheel and circular-saw accidents.

Complications.—Pleurisy 1.

INJURIES OF THE LOWER EXTREMITIES.

Wounds.—Males 20, female 1. C. 19, R. 1, U. 1. In 2 males amputation of thigh required. Both cured.

Wound of popliteal vein.—Male, æt. 29. Crushed between a phaeton and tramcar. Deep transverse wound in popliteal space. Considerable hæmorrhage before admission, checked by pressure, which recurred on removal of dressings. Wound lacerated 1½ inches long, and contents of space stripped apart by extravasation. A longitudinal wound made under ether in line of artery exposed the vein, from which free hæmorrhage was occurring. The vein was freed, a ligature passed above and below opening and tied; the vein was then divided. The leg became somewhat œdematous later, but patient made a rapid and good recovery. Left cured on the thirty-eighth day.

Dislocations of hip.—Males 3. C. 2, D. 1. All dorsal; all reduced by manipulation under ether. Two caused by fall of buildings on back; 1 knocked down and run over. This case complicated by fractures of pelvis and tarsus. The patient died a few hours after reduction. No post-mortem allowed.

Dislocations of foot.—Males 2. C. 1, R. 1. One dorsal metatarso-phalangeal joint of great toe. 1 of astragalus inward, of 12 months' duration, caused by a wheel accident; admitted for some inflammation of soft parts and cured.

Fractures of femur.—Simple.—Males 47, females 17. C. 58, R. 1, D. 5. Right limb 36, left 28; caused by direct violence 14, indirect 51; fracture in superior third 19, in middle third 34, in lower third 9; involving knee-joint 3; of external condyle 1; of internal condyle 1; of great trochanter 1; greenstick 1; refractures 2. *Complications.*—Other fractures 3; fibula 1; clavicle 1; humerus 1; dislocation of humerus 1; effusion into knee 2; rupture of popliteal artery 1 (see below). *Treatment.*—Five treated with plaster-of-Paris splints only; 1 with plaster of Paris and extension; 1 with Hodgen's splint; the remaining 57 with long outside, extension, and plaster of Paris either spica or anterior. Delayed union in 3; 134, 240, and 260 days respectively; non-union in 2, 1 with some callus. Amount of shortening noted in 12 cases only. None 2, ¼ inch 2, ½ inch 4, ¾ inch 3, 1½ inches 1.

Fatal cases.

Male, æt. 66. Fall, recovering from hemiplegia. Ether administered to allow of reduction of fracture. Died 12 hours after admission. Fracture of upper third. Aortic and mitral valvular disease. General disease of blood-vessels (atheroma and calcification). Adherent renal capsules. Intense œdema of lungs, ? ether.

Male, æt. 13. Wall fell on patient. Fracture of middle third. Rupture of popliteal artery. Large blood extravasation in thigh. During life a laceration of the femoral artery was suspected. The boy was much collapsed, and to save shock of amputation or prolonged search in the infiltrated thigh for wounded point of vessel common femoral artery was tied. Patient never recovered shock and loss of blood, and died on second day. P.M.—Rupture found to be

complete, and of popliteal artery, the lumen of which was closed with recent clot.

Male, æt. 68. Fracture of superior one third of great trochanter. Patient died suddenly on sixth day, while splint was being readjusted, with a convulsive fit. P.M.—No direct cause found. Heart somewhat dilated, and general degeneration of vessels. No clot in pulmonary artery. Osteo-arthritis of hip, large bursæ beneath ilio-psoas tendon extending into pelvis.

Male, æt. 71. Fracture of middle third. Patient died on fourth day of shock and extravasation. P.M.—Fracture oblique; gout; cardiac hypertrophy, atheroma of vessels, granular kidneys, emphysema of lungs.

Male, æt. 1 year, 7 months. Fracture of junction of superior and middle one third. Died on second day. P.M.—General bronchitis, emphysema; periosteum incompletely separated.

Compound.—Males 3. C. 2, D. 1. Left 2, both caused by direct violence; 1 in middle third, 1 in lower; 1 treated with iodoform dressing, long outside, and extension, 1 by amputation.

Fatal case (entered in Table II as multiple compound comminuted).—Male, æt. 55. Knocked down by heavily-laden van, which passed over both his thighs. Compound fracture both femora just above condyles. Simple fracture of external and internal malleoli, right, and of fifth metatarsal bone, right. Fractures put up under ether, dressed with iodoform, and long outsides applied. On second day gangrene of right limb set in, and the thigh was amputated in the middle third. Patient died of exhaustion 11 hours later. No post-mortem examination allowed.

Neck of femur.—Males 3, females 3. C. 4, R. 2. Intracapsular 1; extracapsular 3; mixed 2.

Patella.—Males 21, females 8. Right 14, left 15, transverse 16. Caused by muscular action 25, direct violence 4. Comminuted 1, old fractures 4, old fractures of opposite bone 2. *Complications.*—Scalp wound, bare frontal bone 1; marked hæmarthrosis 1. *Treatment.*—Ice-bag and MacIntyre, followed by plaster of Paris, 12; plaster of Paris only 14; leather splint for old cases 2; 1 case (old) sutured; also 1 compound fracture.

Male, æt. 19. Patella fractured by direct violence, contused wound, numerous fragments removed, and large upper fragment sutured to patellar tendon, joint drained, iodoform dressings. Some suppuration, but patient discharged well on seventy-ninth day. Patella, if anything, lower than fellow. Slight flexion the only movement possible, bone movable slightly in lateral direction. Limb fairly strong. Left wearing splint.

Male, æt. 44. Muscular action, 13 weeks' standing, transverse. Sutured, suppuration and burrowing. Left on 118th day. Wound healed, could walk with crutch, only slight flexion possible.

Fractures of leg—

Tibia.—Simple.—Males 29, females 6. C. 34, R. 1. Right 18, left 16; not stated 1; caused by direct violence 6, indirect 29; through upper third 4, middle third 15, lower third 15; not stated 1; greenstick 1. All treated with lateral plaster-of-Paris splints. Non-union 1. Male, æt. 42. Left on sixty-

third day. *Complications.*—Contusion of thigh 1; wound of palm 1; hemiplegia and cystic sarcoma of breast 1; delirium tremens 1.

Compound.—Males 4. C. 4. Right 1, left 3; direct violence 3, indirect 1; middle third 4. All 4 dressed with iodoform, and put up in lateral plaster-of Paris splints. One case comminution considerable, and fragments were removed, One case necrosis; sequestrotomy on fifty-sixth day. Average time under treatment 49 days.

Fibula.—Males 42, females 5. C. 47. Right 22, left 21; not stated 5; direct violence 6, indirect 41; upper third 1, middle third 6, lower third 36; not stated 4. Treated throughout with lateral plaster-of-Paris splints. One became compound secondarily. In 1 case old knee disease existed. *Complications.*—Wound of palm 1; delirium tremens 1.

Fractures of tibia and fibula.—Simple.—Males 58, females 18. C. 76. Right 43, left 26; not stated 7; direct violence 6, indirect 70; upper third 2, middle third 29, lower third 41; not stated 4. *Complications.*—Scalp wounds 2; concussion 2; hæmatoma of scalp 1; superficial wound of leg 1; dislocated humerus 1; fracture of opposite fibula 1; effusion into knee 1; erysipelas 1; gout 1; talipes equinus 1. All treated with lateral plaster-of-Paris splints but one, that put on a Neville. In 3 delay in union occurred for 48, 87, and 92 days respectively. One ununited fracture of 21 months' standing, treated with plaster-of-Paris splints for 123 days, cured.

Compound.—Males 7, females 4. C. 10, D. 1. Right 7, left 4; direct violence 8, indirect 3; middle third 7, lower 4. Two were much comminuted, 1 transverse, others oblique, in 1 fragments of bone were removed. In 1 the puncture of skin occurred during putting up of fracture. In 1 case intercurrent attack of facial erysipelas, wound remaining healthy. *Treatment.*—One case amputated below knee. All others were disinfected with 5 per cent. carbolic lotion, and dressed with iodoform and salicylic wool; in 2 Neville's splint used at first, in 1 MacIntyre's, in other 7 lateral plaster of Paris throughout. In no case any unpleasant local or general symptoms, except one attack of delirium tremens. In 2 there was no suppuration. In 2 union was weak at time of leaving. One case was of 3 months' standing, not united and with necrosis. This sent out cured in 76 days. Average length of treatment of others 78 days.

Fatal case.—Male, æt 41. Knocked down by engine. Compound comminuted fracture of right tibia and fibula, fracture of right clavicle, sternum at level of third costal cartilage, and the costal cartilage; died a few hours after admission, of collapse. Organs healthy except slight cirrhosis, and some small cysts in kidneys.

Compound of tarsus.—One case of crush of tarsus, and 2 of crushed metatarsus, all in males, treated by amputation of leg, great toe, and fourth and fifth toes respectively, all cured.




SPECIAL TABLE I.—HERNIA.




SPECIAL TABLE I.—*Strangulated*

No.	Occupation.	Sex.	Age.	Side.	Duration of hernia.	Duration of strangulation.	Structure of hernia.
1	Printer	M.	68	L.	2 years	24 hours	?
2	Labourer	M.	19	L.	Congenital	24 hours	?
3	Ostler	M.	21	R.	3 months	6 hours	?
4	Night watchman	M.	67	R.	25 years	6 hours	?
5	Tinman	M.	16	R.	Congenital	26 hours	?
6	Carpenter	M.	84	R.	30 years	18 hours	?
7	Stall-keeper	F.	49	L.	6 years	24 hours	Enterocele
8	Labourer	M.	40	L.	10 years	6 hours	—
9	Carpenter	M.	35	L.	15 years	48 hours	—
10	—	M.	31	—	20 years	24 hours	—
11	Infant	M.	11 months	—	2 months	8 hours	—
12	—	M.	62	R.	20 years	24 hours	—
13	Asylum attendant	M.	23	L.	4 days	24 hours	—
14	Leather dresser	M.	52	R.	10 years	18 hours	—

Hernio

15	Child	M.	11 months	—	1 day	24 hours	Enterocele
16	Carman	M.	28	R.	5 years	24 hours	„
17	Gardener	M.	52	L. double	R. congenital; L. 5 years, congenital	48 hours	„
18	—	M.	70	R.	3 months	70 hours	„
19	—	M.	41	R.	Old	3—4 days	Enterocele, cæcum, and ilium
20	Married	F.	41	L.	18 years	3 days	Enterocele

Hernia.—Inguinal.

Treatment.	No. of days in hospital.	Result.	Remarks.
Ice, spontaneous reduction	4	C.	Hydrocele of tunica vaginalis.
Ditto	5	C.	
Ditto	6	C.	
Taxis	5	C.	
Ether, taxis	9	C.	Congestion of lungs (? ether).
Ice, taxis	9	C.	
Ditto	3	C.	
Taxis	1	C.	
Warm bath, taxis	3	C.	
Ether, taxis	2	C.	
Taxis	1	C.	
Ether, taxis	17	C.	
Chloroform, taxis	4	C.	
Warm bath, taxis	12	C.	

tomy.

Chloroform; herniotomy; iodoform and salicylic wool dressing	10	C.	Sent out without truss. No protrusion on crying, &c.
Ether; herniotomy; disinfected with 2½ per cent. carbolic lotion; iodoform and salicylic wool dressings; deep drainage-tube	33	C.	Rigor after operation. Bowel black, offensive fluid in sac.
Ether; herniotomy; bowel dark, still polished; iodoform and salicylic wool dressing; opium gr. j 6tis horis	6	D.	Unsuccessful taxis under chloroform before admission. Going on well till 3rd day. Got oranges surreptitiously, and ate one with its peel. Vomiting commenced, and continued till death on 6th day. Temp. only once rose to 100°. P.M.—Wound healed; old peritoneal adhesions; recent peritonitis in left iliac fossa; constricted intestine 5 feet above ileo-colic valve, 4 inches involved, soft, but not gangrenous; orange peel still in stomach.
Ether; herniotomy; deep drain; iodoform and salicylic wool dressing	3	D.	No rise of temp. after operation. Much collapsed on admission, and had hiccough; this persisted after operation till death from exhaustion. No P.M. Gut dark red, with deep constrictions, dark fluid in sac.
Ether; herniotomy; reduced without great difficulty; iodoform and salicylic wool.	1	D.	Died of collapse. P.M.—Some congestion of ileum in neighbourhood of ilio-colic valve only sign. Congestion of lungs.
Ether; herniotomy; deep drain; iodoform and salicylic wool.	4	D.	Fæcal vomiting and collapse on admission. After operation restless, delirious at night. Died on 4th day of collapse, with great perspiration. Temp. never above 100°. No P.M.

Herniotomy, wit

No.	Occupation.	Sex.	Age.	Side.	Duration of hernia.	Duration of strangulation.	Structure of hernia.
21	—	M.	21	R.	14 years	2 days	Epiplocele
22	Printer	M.	18	L.	24 hours, congenital	24 hours	Entero-epiplocele
23	—	M.	17	R.	4 days	4 days	,,
24	Carpenter	M.	23	R.	3 years	1 day	,,
25	—	M.	50	R.	Old	5 days	,,
26	Labourer	M.	24	—	Old	3 days	Entero-epiplocele, cæcum, and vermiform appendi
27	—	M.	35	R.	17 years	12 hours	Enterocele
28	Child	M.	$1\frac{2}{12}$	L.	4 days	4 days	,,
29	Agent	M.	75	R. double	30 years	6 days	,,
30	Traveller	M.	60	R.	10 years	12 hours	,,

Radical Cure.

Treatment.	No. of days in hospital.	Result.	Remarks.
Ether; sac opened; omentum transfixed, removed; neck of sac ligatured, and whole removed; drain to superficial wound; iodoform and salicylic wool dressing	33	C.	Left undescended testis. Chloroform and taxis before admission. Operation on 5th day. On 12th day signs of inflammation about wound, and on 17th day pus escaped spontaneously from lower angle of wound. No protrusion of cicatrix on discharge.
Ether; sac opened, omentum removed; fluid escaped from belly; sac dissected out, pillars sutured with two catgut stitches; spray used, iodoform and salicylic wool dressing; superficial drain	25	C.	Temp. up during 1st week, once reached 102°. Slight attack of bronchitis. No truss; no sign of protrusion on discharge.
Ether; sac opened, removal of omentum. No details of radical cure	19	C.	Left without truss; no sign of protrusion.
Ether; sac opened; neck of sac removed, suture of pillars; sac stitched to skin wound; iodoform and salicylic wool dressing	27	C.	Sent out with truss; no sign of protrusion. Seen 5 months later, then sac sound and firm.
Ether; sac opened, omentum removed, also entire sac by transfixion of neck; deep drain; iodoform and salicylic wool dressing	47	C.	Sent out with truss. 6 inches of bowel included, deep rings of constriction. Sinus persisted some time, and had to be slit up.
Ether; sac opened, omentum removed, sac dissected out and cut off; iodoform and salicylic wood dressings	22	C.	Attack of colitis. ? Some peritonitis, treated with leeches and opium.
Ether; sac opened, gut returned, neck of sac transfixed, and sac removed after dissection; two catgut sutures put in pillars; iodoform and salicylic wool dressing	23	C.	Sent out with truss; no sign of protrusion.
Ether; sac opened; gut returned; sutures applied between floor of sac and lower end of globus minor of undescended testis; neck closed by suture, sac not removed; iodoform and salicylic wool	16	C.	Firmly healed on discharge; testis lay at upper part of scrotum. No truss; no sign of protrusion.
Cocain injected over sac. Sac opened, 1 foot of intestine in fair condition returned. Deep sutures introduced, but sac left to shorten operation. An anæsthetic thought unsafe. Iodoform and salicylic wool	10 hrs.	D.	Numerous attempts at taxis before admission. Fœcal vomiting, collapse. P.M.—No peritonitis; congestion of ileum starting 4 inches above valve, and extending 2 feet, middle 8 inches most affected; atheroma of aorta, hypostatic pneumonia double, left pleurisy, granular kidneys.
Ether; gut reduced without opening sac and neck dissected up, and ligatured in hope of extra-peritoneal operation; ligature, however, slipped. Pillars sutured, and sac removed. Spray; iodoform and salicylic wool.	8	D.	Taxis 20 minutes before admission. Retention. Continuous vomiting, dark brown matter. On 7th day inflammatory swelling in neck. Temp. never higher than 100°, that once only. ? Pyæmia.

No.	Occupation.	Sex.	Age.	Side.	Duration of hernia.	Duration of strangulation.	Structure of hernia.
31	—	M.	40	R.	21 months	12 hours	Entero-epiplocele
32	Huckster	M.	32	L.	Congenital	24 hours	,,
33	—	M.	49	R.	6 years	24 hours	,,
34	—	F.	70	R.	20 years	24 hours	,,
							Too Collapsed
35	—	F.	75	—	—	—	Enterocele
							Abdominal
36	Labourer	M.	56	L.	2 years	4 days	Enterocele
							Femoral Hernia.—
37	Married	F.	50	R.	20 years	24 hours	Entero-epiplocele
38	Single	F.	60	L.	8 months	5 days	Enterocele
39	Widow	F.	79	L.	4 days	4 days	,,

Treatment.	No. of days in hospital.	Result.	Remarks.
Ether; sac opened; omentum removed after transfixion, fluid in sac and belly, both clear, straw-coloured, evacuated; sac removed; pillars approximated with 3 silk sutures; iodoform and salicylic wool; superficial drainage	3	D.	Vomited after operation, and had a stool. Temp. rose slowly to 101°. P.M.—Acute peritonitis.
Ether; sac opened; omentum transfixed and removed; pillars sutured; iodoform and salicylic wool; gut congested but shining, dark brown fluid in sac	12 hrs.	D.	No P.M. Much collapsed on admission. Never rallied after operation.
Ether; sac opened; large piece of omentum transfixed and removed; sac dissected out, 2 catgut sutures for pillars; spray used; iodoform and salicylic wool; gut congested, but with polish	2	D.	Came down while straining with diarrhœa. P.M.—Marked local peritonitis. Strangulated gut 8 inches from valve, 7 inches in extent, black, sloughing at upper point of constriction, less so at lower. Congestion of lungs, staining of endocardium, closure of inguinal canal complete and good.
Ether; sac opened; gut and omentum reduced, good condition, straw-coloured fluid; neck sutured, sac not removed	36	C.	Left with truss; no tendency to protrusion.
for Operation.			
—	12 hrs.	D.	No clinical notes. P.M.—Strangulation of gut 7½ feet above valve, 3½ inches in extent. Superficial gangrene. No peritonitis.
Section.			
Ether; abdominal section; knuckle of small intestine found in internal ring, which ruptured during manipulation; ends of bowel brought to abdominal wound; peritoneal cavity disinfected; spray; iodoform and salicylic wool	1	D.	No tumour visible or palpable; impulse at ring Fæcal vomiting; collapse. P.M.—No peritonitis; lungs intensely congested; much fat; mitral regurgitation; organs healthy. Died from collapse.
Herniotomy.			
Ether; sac opened; gut in good condition; omentum adherent to neck of sac removed; sac not removed; deep drain; spray; iodoform and salicylic wool	41	C.	
Ether; sac opened; gut dark, but still polished; iodoform and salicylic wool dressing	21	C.	
Ether; intestine throughout adherent to sac; artificial anus established	9	D.	Fæcal vomiting and collapse on admission. P.M.—Fæces in abdomen at site of artificial anus; early peritonitis; opening in ileum 12 feet from valve; atheroma of aorta; pulmonary emphysema; gall-stones; kidney small, adherent capsule.

No.	Occupation.	Sex.	Age.	Side.	Duration of hernia.	Duration of strangulation.	Structure of hernia.
40	Married	F.	57	R.	8 years	4 days	Entero-epiplocele
41	Sexton	M.	71	L.	—	—	Enterocele
							Herniotomy with
42	Married	F.	50	L.	2 days	2 days	Entero-epiplocele
43	Married	F.	60	R.	7 years	1 day	,,
44	—	F.	47	—	—	—	Enterocele
45	School	F.	8	R.	6½ years	7 days	,,
46	Married	F.	51	L.	11 months	1 day	,,
47	Married	F.	67	R.	1 year	5 days	Entero-epiplocele
48	Charwoman	F.	58	L.	26 years	2 days	Enterocele
49	Single	F.	56	L.	2 years	3 days	Entero-epiplocele
							Died without
50	—	F.	78	R.	—	—	Entero-epiplocele

Treatment.	No. of days in hospital.	Result.	Remarks.
Ether; small tag of omentum removed	13	D.	P.M.—Strangulated gut, ileum, 5½ feet from valve, 1½ inches in extent, soft, adherent to another coil ruptured during handling; emphysema; pneumonia, grey hepatisation left upper lobe.
No clinical notes	6 hours	D.	P.M.—Strangulated gut, jejunum, 18 feet from valve; moderate congestion, limited by lines of constriction, 2 inches in extent; sac of hernia unopened; no peritonitis; pulmonary emphysema; thickening of aortic valves; atrophied kidneys.
Radical Cure.			
Ether; sac opened, adherent intestine dissected out; sac and adherent omentum removed; iodoform and salicylic wool dressings	35	C.	No sign of protrusion on discharge.
Ether; sac opened, intestine returned; omentum transfixed, ligatured, and cut off; sac removed, neck tied; iodoform and salicylic wool dressings	19	C.	No truss; no tendency to protrusion on discharge.
Ether; sac opened, gut returned; sac removed; deep and superficial drain; iodoform and salicylic wool dressings	26	C.	No sign of protrusion on discharge.
Ether; sac opened, gut returned; sac removed; iodoform and salicylic wool dressings	18	C.	Developed after a fall on a pail at 18 months of age. No sign of protrusion on discharge.
Ether; sac opened, gut returned; sac removed; deep drain introduced, as there was much fluid in abdomen, iodoform and salicylic wool dressings	25	C.	No sign of protrusion on discharge.
Ether; sac opened, gut returned; omentum transfixed and removed; sac dissected out; iodoform and salicylic wool dressings	11	D.	P.M.—Wound healed; canal closed; thrombosis of internal saphena and right femoral veins; abscess in left submaxillary gland and left lung. Submaxillary abscess formed 5 days after operation. See Pyæmia Table.
Ether; sac opened, gut dark but polished; sac removed, neck ligatured; drain; iodoform and salicylic wool dressings	6	D.	Delirium. Inflammation around wound. P.M.—Omentum adherent to ring. Knuckle of gut 1 foot from valve covered with lymph; peritonitis quite local.
Ether; sac opened; omentum transfixed and removed; sac dissected out; deep drain; iodoform and salicylic wool dressings	3	D.	P.M.—Strangulation of gut, 4 inches in length, 2 feet from valve; covered with lymph, as were intestines near; organs atrophic.
Operation.			
No clinical notes	12 hrs.	D.	Died soon after admission. No operation. P.M.—Gut near valve; omentum also in sac; not gangrenous.

Umbilical

No.	Occupation.	Sex.	Age.	Side.	Duration of hernia.	Duration of strangulation.	Structure of hernia.
51	Married	F.	41	—	8 years	16 hours	Entero-epiplocele
52	Married	F.	35	—	5 years	3 days	Epiplocele

Hernia not

No.	Occupation.	Sex.	Age.	Side.	Duration.	Reducible or irreducible.	Nature of hernia.
1	Carpenter	M.	61	R.	20 years	Irreducible, 5 years	—
2	Clerk	M.	20	L.	2 years	Irreducible	Epiplocele
3	Child	M.	15 months	R.	10 days	Reducible	Enterocele
4	Child	M.	15 months	R.	13 months	Irreducible	—

Radical Cure

5	Child	M.	7	L.	4 months	Reducible	Probably epiplocele. Fluid in sac, reducible into belly
6	Brass-finisher	M.	29	R.	—	Irreducible	Epiplocele, with fluid
7	Butcher	M.	22	L.	1 day	„	Entero-epiplocele
8	Carpenter	M.	36	R.	Congenital	Reducible	„

Hernia.

Treatment.	No. of days in hospital.	Result.	Remarks.
Ether; sac opened from end to end, omentum removed, gut returned; sac and redundant skin removed; sac ligatured, and several catgut sutures passed across ring; spray; iodoform and salicylic wool; superficial drain	22	C.	Patient in 5th month of pregnancy. Troublesome attack of diarrhœa during course of treatment. No protrusion; went out with belt.
Ether; sac opened, much adherent omentum removed; neck of sac ligatured with silk, and ring sutured with silk; redundant skin cut away with sac; iodoform and salicylic wool dressings; spray; superficial drain	18	C.	Went out with belt; no protrusion.

Strangulated.

Treatment.	No. of days in hospital.	Result.	Remarks.
Ice-bag; rest	14	R.	
Ice-bag; rest	3	R.	
Rest; truss	19	R.	
Chloroform taxis	20	T.	Contracted diphtheria, and later died.

Operations.

Chloroform; incision of sac, fluid contents only observed, but opening into peritoneal cavity; sac dissected out; pillars sutured; iodoform, salicylic wool, spray	55	C.	Right undescended testis. Case was perhaps one of congenital hydrocele only, but communication with abdomen was free. Made an excellent recovery. No rise of temperature. Cure complete.
Ether; incision into tumour, opening tunica vaginalis; omentum removed; sac dissected out; drain; iodoform and salicylic wool dressing	92	C.	Reactionary hæmorrhage night of operation controlled by pressure. Wound did not do well, and after occasional oozing on 11th day secondary hæmorrhage. Wound opened up and a branch of the epigastric secured, at same time the gangrenous testis was removed. After this patient made a rapid recovery.
Ether; sac opened; no adhesions; sac dissected out; pillars ligatured with catgut; iodoform and salicylic wool dressings	65	C.	Left 39 days after operation. Well. Long depressed cicatrix. No sign of protrusion. No truss.
Ether; sac opened; omentum removed; sac dissected out; pillars sutured with catgut; superficial drains; iodoform and salicylic wool dressing	58	C.	Attack of bronchitis. Sinus healed slowly.

No.	Occupation.	Sex.	Age.	Side.	Duration.	Reducible or irreducible.	Nature of hernia.
9	Tinworker	M.	18	R.	6 years	Irreducible	Entero-epiplocele
10	—	M.	43	L.	Old	„	„
11	School	M.	13	R.	Congenital	Reducible	„
12	Child	M.	3½	R.	„	„	„
13	Child	M.	3½	R.	„	Irreducible	Enterocele, cæcum
							Femoral
14	Married	F.	60	L.	36 years	Reducible	Epiplocele
							Umbilical
15	Writer	M.	32	—	2 months	Irreducible	—
16	Laundry-maid	F.	47	—	7 years	„	—
17	Barman	M.	43	—	8 years	„	—
18	Married	F.	26	—	6 months	„ 2 months	—
							Operation for
19	Married	F.	39	—	6 months	—	Epiplocele

Treatment.	No. of days in hospital.	Result.	Remarks.
Ether; sac opened; omentum adherent; omentum and sac removed; iodoform and salicylic wool dressing; pillars not sutured on account of thinness	47	C.	
Ether; hernia pushed up; sac opened; adherent omentum dissected off and removed; intestines kept back by a sponge; sac dissected out; atrophied testis removed from upper part of canal; four catgut sutures put through pillars; iodoform and salicylic wool	112	C.	Large hernia, three fingers entered ring easily. Suffered a good deal with rheumatism. Sent out with truss. No sign of any fresh protrusion.
Ether; testis exposed; opening made at bottom of scrotum, to which testis was stitched; sac of hernia freed, cut off, and pillars sutured with catgut; iodoform and salicylic wool dressings	43	C.	Testis in thigh at junction with scrotum. On discharge no protrusion, testis in scrotum free, but not quite so low as fellow.
Ether; tunica bag opened; funicular portion removed; pillars sutured with catgut; iodoform and salicylic wool dressings	54	C.	An attack of local peritonitis? during course. Ill during 1 week, then rapidly got well.
Chloroform; incision on to gut, which proved to be cæcum and appendix; carefully dissected out, returned, and pillars of ring sutured; iodoform and salicylic wool dressings	43	C.	When 6 months of age the tapping of a supposed hydrocele led to development of a fæcal fistula, which closed after 6 months. Hernia afterwards irreducible. No truss.
Hernia.			
Ether; sac opened; a long tag of matted omentum removed; sac dissected out, and neck ligatured; iodoform and salicylic wool dressings	30	C.	Good recovery. Took truss. Hernia a somewhat remarkable one, extending 4½ inches down thigh, and 3½ inches broad.
Hernia.			
Nil	1	Nil	Melæna, jaundice. Transferred to medical side, where he died.
Belt; rest	36	R.	Much smaller. Pregnant.
Ice-bag; rest	11	R.	Syphilis tertiary.
Ice-bag; rest; Lot. Sod. Chlor.	18	R.	Ulceration of surface.
Radical Cure.			
Ether; sac opened; omentum ligatured and removed; wound closed with quilled sutures; spray, iodoform, and salicylic wool	36	D.	No P.M. Patient progressed unsatisfactorily, the wound suppurated, and death was caused by a localised collection bursting into peritoneal cavity.

Special Table II.—*Erysipelas (arising in hospital).*

No.	Sex.	Age.	Disease for which admitted.	Ward in which it arose.	Duration of residence in hospital before attack.	Probable cause of attack.	Month.	Part where eruption appeared.	Interval between action of probable cause and appearance of eruption.	Duration of attack.	Result.	Remarks.
1	M.	7	Wound over knee, suppuration of joint	Albert	121 days	?, Wounds healed	Jan.	Foot to knee	—	9 days	C.	Wounds were healed, and and limb in plaster-of-Paris splint.
2	F.	54	Scalp wound	Alexandra	7 days	Interference with wound to restrain second hæmorrhage	„	Wound	5 days	10 „	C.	
3	M.	15 mos.	Burn of face and ears	„	8 „	—	Feb.	„	—	7 „	C.	Also contracted measles in hospital.
4	F.	16	Abscess of thigh	„	44 „	? Probing	„	„	3 „	11 „	C.	Ditto.
5	M.	54	Urinary fistula	Leopold	43 „	Perinæal section	„	„	6 „	13 „	C.	
6	F.	10	Old excision of knee	Alexandra	12 „	Sequestrotomy	„	„	6 „	9 „	C.	
7	F.	18 mos.	Necrosis of tibia	Victoria	22 „	„	„	„	19 „	20 „	C.	
8	F.	43	Serous cysts in breast	Elizabeth	14 „	Amputation of breast	„	„	9 „	8 „	C.	
9	F.	9	Necrosis of femur	Alexandra	37 „	Sequestrotomy	„	„	5 „	7 „	C.	
10	M.	68	Fracture of tibia	Edward	50 „	—	Mar.	Face and head	—	20 „	C.	
11	F.	32	Necrosis of rib	Elizabeth	26 „	Sequestrotomy	„	Wound	10 „	13 „	C.	
12	F.	17 mos	Arthritis of knee	Victoria	20 „	Drainage of joint	„	„	3 „	4 „	C.	Limb afterwards amputated.

13	F.	2	Necrosis of tibia	„	1 day	? Examination	April	„	—	7 „	C.	Same case as No. 7. Also contracted measles in hospital.
14	M.	2	Abscess in head of tibia	„	36 days	?	„	„	—	8 „	D.	Contracted diphtheria while in Anne Ward, and died in four days. No P.M.
15	M.	42	Compound fracture of tibia and fibula	Edward	54 „	?	„	Face and scalp	—	20 „	C.	Wound of leg dressed with iodoform, remained uninfected.
16	F.	56	Scalp wounds; fractured base of skull?	Elizabeth	15 „	?	June	Wound	—	13 „	C.	Fracture of anterior fossa ?
17	M.	73	Scalp wound	Edward	15 „	—	April	„	18 „	18 „	C.	
18	M.	5	Arthritis of elbow	Alexandra	69 „	Excision of joint	Aug.	„	4 „	15 „	C.	
19	F.	12	Arthritis of ankle	„	24 „	Examination	„	„	4 „	10 „	C.	
20	F.	59	Inflammation of breast	„	15 „	Amputation	Sept.	„	9 „	7 „	D.	P.M.—Dilated flabby heart. Old pleuritic ahesions. Broncho-pneumonia, right lower lobe, emphysema. Suppurative nephritis. Pyelitis (early).

Above table shows 11 cases in No. 3 Block, Alexandra 8, Elizabeth 3; 4 in No. 4 Block, all in Victoria; 1 in No. 6 Block, Albert; 4 in No. 7 Block, Edward 3, Leopold 1.




SPECIAL TABLE III.—PYÆMIA.

CLASS I.—*Admitted as such.*

Abscesses in cellular tissue.—Female, æt. 2½. Abscess in axilla noted 1 week, no apparent cause; tissues covering it hard and brawny; spontaneous opening had occurred. Tenderness and œdema in lumbar region. The temperature ran a very irregular course, sometimes dropping to normal, at others reaching 101°, 102°, and 104°. Abscesses developed over jaw, neck, chest, abdomen, finger and back, and were successively opened; the patient also passed pus *per rectum*. No rigors were observed. Gradual loss of strength, much foul discharge from wounds, and patient died on eighteenth day, about 24 days after first abscess was noticed. P.M.—Emaciation. Abscess cavity in left axilla extended over left side of back to sacrum in subcutaneous tissue. Other abscesses closing. Superficial sloughing of mucous membrane of upper 1½ inches of œsophagus; no membrane. Organs healthy, except fatty liver. No signs of tubercle.

Epithelioma of scrotum.—Male, æt. 60. Epitheliomatous ulcer removed from scrotum 6 months previously. The wound never entirely healed, and after leaving the hospital he had an attack of erysipelas spreading from it, which laid him up for 10 weeks. On admission, an epitheliomatous ulcer in either groin, due to breaking down of infected glands. On the first 3 days after admission he had a rigor daily, the temperature on these occasions varying between 101·4° and 103·6°. On the fourth day a fit of coughing, followed by bloody expectoration, was noted, and on the fifth swelling of both knees and a blush over left elbow. He lost strength rapidly, rigors occurring once or twice daily, and died on the seventh day after admission. After the last rigor the temperature reached 105·8°. P.M.—No abscesses in internal organs, suppuration of left knee and elbow. Body much decomposed, serous membranes deeply stained, and a little blood-stained fluid in cavities.

CLASS II.—*Acute bone cases and one acute abscess.*

Acute infective periostitis.—Male, æt. 5. Boot sores on heels 1 week before admission, followed by pain and swelling of left leg. On admission pinched, anxious expression; very tense, painful swelling of left leg; temp. 100·6°. Incision revealed suppuration at lower epiphysial line of tibia, and separation of periosteum for whole extent of internal aspect; bullet-probe passed upward to top of

leg and a counter-opening made; much pus in calf. Delirious; much pain; temperature rising to 100° and 103°; no appetite. On fifth day swelling incised over lower fibular epiphysis, blush noted over right patella, and swelling over left ulna. No rigors, sweating, or diarrhœa. Left thigh amputated. During next 2 days somewhat better, but on sixth day diarrhœa noted; temp. 100·2°. Twelfth day, abscesses over deltoid and left axilla opened; temp. 102°. Continued slowly to get worse, temperature varying between 100° and 103°; diarrhœa; on sixteenth day jaundice; and on nineteenth day he died. P.M.—Abscess over patella superficial; epiphysitis, with denudation of bone of the left lower ulnar epiphysis, and periostitis of upper part of shaft of left humerus. No affection of joints. Myo- and pericarditis; no pus, but sanguinolent fluid. Small dotted abscesses in renal cortex.

Acute suppuration of hip.—Male, æt. 28. Doubtful case (see Diseases of Locomotory System, p. 375). Acute suppuration of hip, &c.

Acute infective periostitis of femur.—Female, æt. 11. Limb squeezed in folding perambulator 4 days before admission. Pain, swelling, and tenderness in left thigh. An incision was made on admission, and bare bone and pus found in popliteal space. Temp. 104·6°. Temperature varied between 100° and 103°, but not strikingly. Blush over left ankle on second day, and she died. P.M.—Periostitis of lower one third of left femur; nothing abnormal to be detected at epiphysial line. Pericardium healthy. Recent lymph on diaphragmatic aspects of both lungs, and multiple pyæmic abscesses on left side in lower, on right in lower and middle lobes; some early infarcts also present. Organs otherwise normal.

Acute necrosis of acetabulum.—Male, æt. 15. Twisted his right lower extremity in walking 4 days before admission. Admitted with signs of fluid in right hip-joint; great pain; temp. 106°. Rigor, delirious at night. Third day, delirium, general pustular eruption; temp., highest 104°, lowest 101·8°. During next 2 days delirious, rapidly losing strength, temperature maintaining same character, and fresh pustules developing. Died on the fifth day. P.M.—Body well nourished, pus in left hip-joint, bare bone near insertion of ligamentum teres to acetabulum, considerable collection of pus on pelvic surface of bone, extending up to Poupart's ligament. General adhesions in both pleuræ; numerous early infarcts the size of peas in left lung, fewer in right; similar infarcts in kidneys.

Abscess of leg.—Male, æt. 1. Suppuration about ankle, thought due to epiphysitis of 4 days' standing. Each side of joint incised. Patient developed signs of meningitis, with very irregular variations of temperature, 104°—99°, and died on the fifteenth day. P.M.—No epiphysitis discovered, bones and joint healthy. Abscess behind tendo Achillis spreading up calf. Longitudinal and lateral sinuses contained pale adherent clot, coagulum breaking down at torcular. Extensive meningitis of vertex and base; much lymph at tips of frontal and temporo-sphenoidal lobes, over chiasma and pons. No tubercles seen. Some softening and hæmorrhage into left lobe of cerebellum. Other organs healthy.

CLASS III.—*Arising in hospital.*

Fractures of jaw.—Female, æt. 60. Knocked down by a tramcar. Admitted with fractures of the lower jaw crossing mid point of horizontal ramus (right) and junction of horizontal and vertical rami (left), also 2 fissures extending upward from alveolar process of right upper jaw. External wounds on either side of symphisis. A great deal of foul discharge escaped from mouth and wounds, and patient's general condition suffered, but the temperature was only somewhat hectic in character for the first 6 weeks; 46 days after admission the temperature rose to 104°, and until death it remained very irregular, once falling to normal, usually fluctuating irregularly between 100° and 103°. On the forty-ninth day pleuritic effusion was diagnosed at the right base, and albuminuria was noted, and sinking rapidly she died on the fifty-fourth day. P.M.—Fracture ununited, wounds open, no callus. Old fracture (left) clavicle; right pleura contained pus 1 pint lymph limited to lower two thirds of cavity; old diaphragmatic adhesions on left side. Irregular abscess cavity opening on to outer surface of right lung near base, 2 smaller ones in close proximity also communicating with the pleural cavity. Emphysema, pus in bronchi, no tubercles. Heart: slight hypertrophy of left ventricle. Thickenings of hepatic capsule, gall-stone. Small aneurysm at point of division of internal carotid within skull.

Strangulated inguinal hernia.—Male, æt. 60. Admitted with strangulated right inguinal hernia. Operated on 21 hours after strangulation took place, and a radical cure performed; 7 days later a large, tense, inflammatory swelling appeared on left side of neck, spreading from zygoma to root of neck (parotid bubo). The temperature only once rose to 100° on the sixth day, and afterwards not above 99°. He gradually sank without any rigor, and died on the eighth day. No P.M. Except for the abscess death would have been attributed to inanition.

Strangulated femoral hernia.—Female, æt. 67. Admitted with strangulated femoral hernia of 5 days' standing. A radical cure was performed. She got only fairly well till fifth day, when a tense swelling appeared in the submaxillary region, which became red on the surface and elastic. Temperature rose to 101·6°, but seldom above 100°, and not varying greatly. Slowly sank, and died on the eleventh day. P.M.—Thrombosis of left femoral and internal saphena veins. Infiltration of left submaxillary gland with pus. Superficial abscess in right lower lobe of lung.

Renal calculus, pyonephrosis.—Male, æt. 22 (see Genito-urinary System, p. 372.). Enlarged prostate, see p. 371, doubtful case.

Wound of wrist.—Male, æt. 43. Circular-saw wound, opening wrist and dividing radial and ulnar arteries, median and ulnar nerves, and flexor tendons. Wound dressed with iodoform, after suture of nerves and tendon and disinfection with 5 per cent. carbolic lotion. Temperature rose on second day to 101·4°, and on the third wound was suppurating. On fourth and fifth days temperature varied between 103° and 104°, inflammatory swellings of both legs and right hand appeared, and amputation was proposed and refused. Temperature kept up between 102° and 104°, and on sixth day a swelling appeared over left knee-joint. On eighth day amputation of forearm in upper one third. On ninth day swellings on legs and

hand incised and pus let out; phalangeal joint of left middle finger suppurating. Tenth day some hæmorrhage from stump; temperature still varying between 101° and 103°. Abscesses formed over left ankle and in left thigh; the latter was opened on the twenty-second day, and the knee aspirated on the twenty-third. There were sweats and diarrhœa, the temperature still often reaching 104°; strength failing. Twenty-fourth day, abscess of right thigh opened, and on twenty-ninth a large abscess noted over sacrum. During the last 6 days the temperature rarely rose above 100° but he got steadily weaker and died on the thirty-first day. No P.M. allowed.

Carcinoma of breast.—Female, æt. 45. Carcinoma of breast 8 months. Glycosuria. At time of operation no sugar in urine. Amputation of breast and clearance of axilla. Temperature rose on second day, and on the fifth reached 104·6°. Wound, which had been dressed under spray with iodoform, now dressed with Lot. Sodæ Chlor. Temperature continued raised, and on ninth day diarrhœa set in; on the eleventh day fair union of wound is noted, but some sanious discharge. On twelfth day abscess of forearm noted, also signs of lung mischief. No rigors, but chilliness and rapid loss of flesh. She died on the fifteenth day. P.M.—Abscess of forearm, fatty abdominal viscera, recent right pleurisy, lymph but no effusion. (Entered also on p. 354.)

STATISTICAL REPORT

OF

THE OPHTHALMIC DEPARTMENT

FOR THE YEAR 1886.

By ROBERT NAIRN,

LATE OPHTHALMIC CLINICAL ASSISTANT.

During the year there were 3738 new out-patients (exclusive of renewed letters). 288 in-patients were admitted and 266 major operations were performed.

Table of In-patients.

Cataract, senile	38	Lost eyes	10
,, traumatic	2	Conjunctivitis	3
,, lamellar	6	"Pemphigus" of conjunctiva (primary shrinking)	1
,, congenital	2	Granular lids and pannus	14
,, posterior polar	2	Iritis, in acquired syphilis	3
,, posterior cortical	1	,, in tertiary syphilis	1
,, soft	2	,, relapsing	8
Dislocated lens	2	,, serous	1
Membrane after extraction	11	,, gonorrhœal rheumatic	2
Glaucoma, acute	3	,, traumatic	1
,, subacute	1	,, in hereditary syphilis	1
,, chronic	13	,, acute without cause	2
,, secondary	3	,, pigment on lens capsule (congenital)	1
,, absolute	1	Irido-choroiditis	1
,, hæmorrhagic	1	Keratitis, heredito-syphilitic	10
,, traumatic	1	Kerato-iritis	4
Wounds of eyeball (including one gunshot injury)	16	Sclero-keratitis	1
Blow on eye	4	Cyclitis	1
Foreign body in cornea	1	Episcleritis	2
,, lens	1		

Nebulæ and leucomata	5
Corneal ulcers, hypopyon, suppurating, traumatic and serpiginous	24
„ chronic, relapsing, &c.	8
Conical cornea	2
Calcareous film of cornea	1
Optic papillitis (double)	5
Progressive atrophy	3
Tobacco amblyopia	1
Hysterical amblyopia	2
Retinitis, syphilitic	5
„ pigmentosa	2
Choroidal atrophy	1
Hyalitis and hæmorrhage into vitreous	3
Detachment of retina	4
Myopia	2
Divergent strabismus	4
Convergent strabismus	7
Hypermetropia	1
Lacrimal abscess and mucocele	7
Trichiasis, entropion, ectropion	5
Abscess of upper lid	2
Wounds and injuries of lids	2
Intra-ocular sarcoma	1
Intra-orbital sarcoma	1
Abscess of orbit	2
Rodent ulcer	1
Ophthalmoplegia	2
Congenital ptosis	3
Dermoid cyst in eyebrow	2
„ of conjunctiva	1
Sub-conjunctival cyst	1
	288

The following is a list of the chief operations performed:

(*The figures refer to the number of eyes.*)

Removal of cataract		58
Extraction	46	
Suction	6	
Curette	6	
Discission after extraction		15
Extraction of membrane with forceps		1
Iridotomy after cataract extraction		3
Förster's operation for ripening cataract		2
Iridectomy		73
For glaucoma, acute	4	
„ „ subacute	1	
„ „ chronic	18	
„ „ secondary	1	
„ „ traumatic	1	
Preliminary to cataract extraction	12	
For prolapse of iris	5	
For perforating ulcer	4	
For relapsing iritis	8	
For anterior synechia	7	
For artificial pupil	9	
For foreign body in lens	1	
For relapsing sclero-keratitis	2	
For conical cornea		2
Peritomy		2
Cautery to conjunctiva		1
„ cornea		6
Tenotomy of internal rectus		32
Graefe's operation	6	
Liebreich's „	20	
Critchett's „	6	
Tenotomy of external rectus		7
Advancement of internal rectus		3
„ external rectus		3
Entropion		5
Snellen's operation	4	
Arlt's „	1	
Ectropion		2
V—Y operation	1	
Plastic „	1	
Ptosis (congenital)		4
Pagenstecher's operation	2	
Panas's operation	2	

Removal of orbital tumour . .	1	Tattooing of cornea . . .	3
Nerve-stretching for painful blind eye	1	Removing penetrating foreign body from cornea . . .	1
Removal of dermoid cyst . .	2	Excision of eyeball . . .	35
„ „ of conjunctiva	1		266
Canthoplasty and blepharoplasty .	3		

Analysis of Cataract Operations.

I.—Extraction of hard cataract—46.

The section was made upwards in every case except Nos. 1, 3, and 38. In No. 1 two incisions were made, one inwards, the other outwards. This case was complicated, the lens having been dislocated by a blow in 1880. In Nos. 3 and 38 the section was made downwards.

Iridectomy was done at the time of the operation, except in Cases 1, 4, 16, 18, 19, 20, 21, 22, 27, in which it had been done before, and in Case 15, which was extracted without iridectomy.

Cocain was used in all but eight cases. With the exception of a few cases at the beginning of the year the cocain used was a 2 per cent. solution of the hydrochlorate. This was always freshly made on the day the operation was performed.

Chloroform was given in seven cases, followed by ether in two, and in one case ether was given alone.

Atropine was commenced once daily on the third day and continued until about the fourteenth day; more frequently when iritis occurred.

The lens capsule was washed out in Case 5 with recently boiled distilled water at 98° F., introduced with McKeown's syringe.

II.—Operations for removal of soft cataract—12.

In six cases the lens was extracted with the curette, in six with Bowman's syringe.

Table I.—*Extractions of Hard Cataract*—46.

Mr. Nettleship's Cases (32).

Page in B. 86.	Report No.	Name and date.	Sex.	Age.	Anæsthetic.	Operation.	Progress of case.	Secondary operation	Result.
38A (B. 85)	1	J. A. Jan. 1st	M.	46	Ether and chloroform	Left; a small incision made at sclero-corneal junction in, and another at margin out. A blunt spatula was put behind lens from inner incision and part of lens withdrawn with sharp hook from outer incision. Some lens capsule with pigment on it also drawn out; no escape of vitreous. Lens dislocated by blow in 1880, and had been freely needled in Nov., 1885	Favorable, but patient was discharged for irritating his eye	None	Good, but particulars not known.
280A (B. 85)	2	W. C. Jan. 1st	M.	61	Cocain and pilocarpin	Right; extraction up with iridectomy; lens hard and very brown, rather large, came out clean. Little, if any, lens matter left	Favorable	None	Feb. 4th— +10 D. S. + 1·5 D. C. —= $\frac{6}{24}$. +15 D. S. + 1·5 D. C. —= 1 J.
280A (B. 85)	3	W. C. Jan. 22nd	M.	61	„	Left; extraction up with iridectomy; lens small, hard. Small quantity of vitreous escaped while endeavouring to coax out fragments of lens	Favorable	None	Feb. 15th— +10 D. = $\frac{6}{24}$, partly. + 15 D. S. + 1·5 D.C. —= 2 J.
23	4	D. E. Feb. 2nd	M.	67	„	Left; extraction down, centre of section corneal. Lens soft and transparent. Good deal coaxed out after. Iridectomy for glaucoma in Dec., 1885	Wound slow in closing	June 4th— Needling attempted, membrane too tough. Iridotomy done, leaving good wide pupil	July 13th— + 12 D. = $\frac{6}{60}$. +18 D. S. + 2·5 D. C. = 14 J. badly.

49	5	C. A. D. Feb. 26th	F.	74	Cocain and pilocarpin	Right; extraction up with iridectomy; lens rather over-ripe, chippy. A. c. washed out with McKeown's syringe and distilled water at 98° F.	Favorable	None	+ 9 D. S. + 1 D. C. = $\frac{6}{24}$. + 13 D. = 6 J.
68	6	C. H. March 30th	F.	66	Chloroform	Right; extraction up with iridectomy; cortex nearly fluid, nucleus hard. Some cortex left; cornea collapsed	April 6th—Iris discoloured, adhesions. April 8th—A. c. full of blood. April 29th—T. – eye quiet	None	April 29th— V. = p. l. only.
78	7	E. J. April 16th	F.	76	Cocain	Right; extraction up with iridectomy; lens very sticky, but nearly all cortex got away without difficulty.	Favorable	None	Nov. 16th— + 11 D. S. + 2 D.C.— = $\frac{6}{18}$, partly. + 15 D. = 4 J. at 23 cm.
103	8	J. C. July 2nd	F.	68	„	Left; extraction up with iridectomy; cortex fluid, large, hard nucleus. Lens came out clean without manipulation	Favorable	None	July 20th—Illiterate. + 12 D., counts $\frac{6}{18}$. + 16 D., sees hands of watch.
104	9	A. R. July 2nd	F.	65	„	Right; extraction up with iridectomy; cornea flabby and became wrinkled against speculum. Lens extended by pressure through lids, came out cleanly but slowly	Favorable	None	Illiterate, only reads Welsh. + 10 D. + 14 D., tells time by watch.
111	10	J, H. July 9th	M.	69	„	Left; extraction up with iridectomy; wound rather short. Lens large, hard; very little left behind and none coaxed out. Blood left in a. c.	July 12th—Attack of gout in right hand. July 20th—Slight iritis; left hospital. Aug. 12th—Iritis and hypopyon; iritis relapsed several times. Nov. 2nd—Keratitis punctata in both	None	When last seen appeared to have a chronic sympathetic ophthalmitis.

Page in B. 86.	Report No.	Name and date.	Sex.	Age.	Anæsthetic.	Operation.	Progress of case.	Secondary operation.	Result.
118	11	G. L. July 13th	M.	54	Cocain	Right; extraction up with iridectomy; section rather peripheral. Much soft matter and smallish hard nucleus. Pupil left nearly black	Favorable	None	July 27th— + 12 D. = $\frac{6}{60}$. + 16 D. = 6 J.
104	12	A. R. July 23rd	F.	65	„	Left; extraction up with iridectomy; some soft matter left, it could not be removed as eye was very much sunken	Favorable	None	Good, but particulars not known.
129	13	C. W. Aug. 6th	M.	50	„	Right; extraction up with iridectomy; lens hard and amber coloured, came out quite clean	Favorable	October 21st— Needled	Dec. 10th— +11 D. S. + 3 D.C.— = $\frac{6}{24}$. + 15 D. = 8 J. at 25 cm.
134	14	A. S. Aug. 13th	M.	79	„	Left; extraction up with iridectomy; lens large, yellow, came out clean. Pupil left black	Favorable	None	Oct. 26th— + 11 D. = $\frac{6}{60}$. + 16 D. = 16 J. Some membrane in pupil.
137	15	J. S. Aug. 13th	M.	41	Cocain and homatropin	Right; extraction up without iridectomy; straight corneal incision. Lens soft, some opaque matter left	Favorable	August 27th— Needled	Aug. 30th—Pupil wide. Operated on for appearance.
23	16	A. H. Aug. 17th	F.	47	Cocain	Right; extraction up. Preliminary iridectomy two months previously. Pupil left nearly clear	Favorable	October 26th— Needled; good opening, membrane brittle	Nov. 5th— (Previous myopia.) + 8 D. = $\frac{6}{24}$. + 14 D. = 1 J. at 14 cm.
129	17	C. W. Aug. 17th	M.	50	„	Left; extraction up with iridectomy; lens clear, amber coloured	Favorable	October 21st— Needled	Dec. 10th— +11 D. S. + 3 D.C.— = $\frac{6}{24}$. + 15 D. = 8 J. at 25 cm.

102	18	G. C. Aug. 20th	F.	9	Ether	Right; extraction up; lens soft. Capsule opened with keratome. Incision in upper part of cornea. Lens followed on withdrawing keratome. Preliminary iridectomy	Aug. 21st—Eye painful, patient restless. Aug. 22nd—Tongue furred, T. 100°, œdema of lids; haze of cornea in region of wound; pus in a.c.; iris muddy. Aug. 23rd—Large hypopyon, infiltration of cornea below lower edge of wound	Aug. 23rd—Actual cautery to wound	Underwent partial suppuration. Sept. 30th—Sees shadow of hand.
106	19	F. F. Aug. 20th	M.	67	Cocain	Right; extraction up; lens soft, small nucleus. Preliminary iridectomy one month previously	Aug. 26th—Some iritis	Oct. 22nd—Needled	April 20th— + 11 D. = $\frac{6}{18}$ + 14 D. = 1 J. at 25 c.m.
107	20	H. E. Aug. 20th	M.	57	„	Left; extraction up; lens partly soft. Preliminary iridectomy one month previously and lens bruised with Priestley Smith's spatula. Pupil left clear	Favorable	None	Oct. 22nd— + 13 D. = $\frac{6}{24}$. + 16 D. + 3 D. C.— = 12 J. at 23 cm.
143	21	S. W. Aug. 24th	F.	78	„	Right; extraction up; lens sticky, but all got away. Preliminary iridectomy eighteen months previously, and lens bruised	Some iritis	Nov. 29th—Iridectomy down	Dec. 27th— + 12 D. = $\frac{6}{24}$. + 20 D. = 2 J. at 15 cm.
107	22	H. E. Aug. 27th	M.	57	„	Right; extraction up; lens large. Pupil left clear. Preliminary iridectomy one month previously	Favorable till Oct. 22nd, then a.c. absent, T. − 3 tender. Has had a little throbbing for 14 days; complains of lacrimation	None	Oct. 22nd— + 13 D. = $\frac{6}{24}$. + 18 D. = 6 J. at 23 cm. Later, only reads 12 J. Eye continues quiet. T. — 3.
165	23	C. E. Oct. 12th	F.	66	„	Right; extraction up with iridectomy; lens soft. Much soft matter removed after nucleus	Favorable	March 18th, 1887—Needling	March 28th, 1887— + 7 D. = $\frac{6}{60}$. + 13 D. = 12 J. at 18 cm.

Page in B. 86.	Report No.	Name and date.	Sex.	Age.	Anæsthetic.	Operation.	Progress of case.	Secondary operation.	Result.
167	24	E. B. Oct. 12th	F.	68	Cocain	Left; extraction up with iridectomy; lens large and hard, came out clean. Incision at junction with conjunctival flap	Oct. 13th—Pricking pain, swelling of lids and conjunctiva. Oct. 14th—Iris muddy; coloboma filled with opaque matter; wound gaping	Oct. 14th—Paquelin's cautery to wound. Oct. 19th—Excised	Lost
170	25	R. N. Oct. 22nd	M.	62	,,	Left; extraction up with iridectomy; line of section good. Lens small, hard, and sticky. No blood left in a. c. Pupil left nearly black; cornea collapsed	Oct. 28th—Blood in a. c.; pain. Patient probably struck his eye during sleep; afterwards favorable	Jan. 25th, 1887—Iridectomy down	Aug. 2nd, 1887— +12 D. = $\frac{6}{36}$ + 15 D. = 12 J. badly.
175	26	M. H. Oct. 29th	F.	75	,,	Left; extraction up with iridectomy; lens amber coloured	Favorable	None	Nov. 15th— Illiterate. + 12 D. Sees board, not letters. + 16 D. = 14 J. at 23 cm.
49	27	C. A. D. Nov. 2nd	F.	74	,,	Left; extraction up; lens soft. Good deal of soft matter squeezed out. Pupil left clear. Preliminary iridectomy three months previously	Favorable; slight atropine irritation	None	+ 9 D. S. + 1 D. C. ∣ = $\frac{6}{12}$. + 15 D. = 1 J. at 23 cm.
174	28	F. C. Nov. 2nd	F.	48	,,	Left; extraction up with iridectomy; lens soft and uneven. Patient very unsteady	Favorable	None	Dec. 17th— +10 D. S. + 3 D. C. ⟋ = $\frac{6}{18}$ (1 letter). +16 D. S. + 2 D. C. ⟋

170	29	R. N. Nov. 5th	M.	62	„	Right; extraction up with iridectomy; section too short. Lens sticky and not fully opaque. Patient behaved fairly, but iris had to be seized twice	Favorable	Jan. 25th, 1887—Iridectomy down; remained irritable many weeks after secondary operation	Aug. 2nd, 1887— +12 D. = $\frac{6}{60}$ +15 D. = 16 J.
186	30	M. B. Nov. 9th	F.	69	„	Right; extraction up with iridectomy. Some soft matter squeezed out after lens; a little left in. Iris was cut with Graefe's knife, while completing corneal incision. Edges of coloboma left rather ragged	Favorable; patient was rather refractory, seemed to have some mental derangement	None	Jan. 18th, 1887— +10 D. = $\frac{6}{18}$, badly. +16 D. = 6 J., partly.
191	31	J. G. Nov. 12th	M.	59	„	Right; extraction up with iridectomy	Favorable	Dec. 10th—Needling	April 22nd, 1887— + 10 D. = $\frac{6}{24}$ +16 D. = 8 J.
192	32	G. F. Nov. 19th	M.	59	„	Left; extraction up with iridectomy. Immediately after making corneal incision fluid vitreous escaped. An attempt was made to remove lens with scoop, but it failed to pass behind lens. Finally, lens was removed with sharp hook. Vitreous was draining away the whole time. At end of operation the eye was much collapsed	Favorable as far as operation was concerned. Coloboma filled with grey matter, probably shrunken vitreous. There was no proof of detachment of retina	None	Good p. l. and fair projection.

Mr. Lawford's Cases (14).

5	33	E. W. March 12th	F.	66	Cocain and pilocarpin	Left; extraction up with iridectomy; section at sclero-corneal junction. Lens moved under cystotome, removed with scoop. Some vitreous lost	Favorable	Oct. 7th—Needling	Oct. 5th, 1887— +12 D. = $\frac{6}{60}$. +16 D. = 14 J.

Page in B. 86.	Report No.	Name and date.	Sex.	Age.	Anæsthetic.	Operation.	Progress of case.	Secondary operation.	Result.
20	34	S. T. May 7th	F.	79	Chloroform	Right; extraction up with iridectomy. Point of counter-puncture too far out. Iris cut in making section. Lens moved under cystotome, was chippy and over-ripe. Small quantity of vitreous escaped. (Mr. G. D. Johnston)	Favorable	None	Oct. 12th— +13 D. = $\frac{6}{18}$, partly. +18 D. = 4 J.
25	35	W. P. May 14th	M.	61	„	Right; extraction up with iridectomy; sclero-corneal section. Soft grey lens matter escaped on opening capsule. Nucleus large, hard, and amber coloured	Favorable	None	June 1st— + 14 D. = $\frac{6}{60}$. + 18 D. = 14 J. at 23 cm. Thin speckled membrane in pupil.
27	36	H. L. May 18th	M.	73	„	Right; extraction up with iridectomy. Incision followed sclero-corneal junction. Iris bled freely into a. c., filling it. Lens easily removed, but blood prevented any sight of pupil. The extreme tip of corneal flap was cut off with scissors during iridectomy	Favorable; some symptoms of atropine delirium and slight attack of gout	None	June 4th— Illiterate. + 10 D., counts $\frac{6}{18}$. + 14 D., counts letters of 18 J. at 23 cm.
35	37	S. G. June 4th	F.	62	„	Left; extraction up with iridectomy. Some soft lens matter in pupil which could not be removed	Favorable	None	June 24th— + 12 D. = $\frac{6}{18}$. + 16 D. = 1 J., partly. Thin membrane may require needling.
36	38	J. G. W. June 4th	M.	54	Chloroform and ether	Right; extraction down with iridectomy; iris removed in two pieces. Much soft matter got out, and subsequently a hard brown nucleus	Favorable	Aug. 8th—Membrane cut across horizontally with iridotomy shears after trying gently to tear it with needle	—

55	39	P. B. Aug. 27th	F.	64	Cocain	Right; extraction up with iridectomy. Much hard cortex, most of which was afterwards coaxed out	Some iritis	Jan. 14th, 1887—Needled	Feb. 28th, 1887— + 15 D. = $\frac{6}{36}$. + 16 D. = 16 J. Crystals of cholesterin in vitreous.
56	40	M. T. Aug. 27th	F.	70	,,	Right; extraction up with iridectomy; incision at sclero-corneal junction. Lens large and hard. A little soft matter left which refused to come away	Aug. 28th—Swelling of lids. Aug. 29th—Wound infiltrated and yellow	Aug. 29th—Actual cautery to wound. Sept. 3rd—Excised	Lost.
58	41	S. D. Sept. 15th	F.	60	,,	Right; extraction up with iridectomy; incision at sclero-corneal junction, except puncture, which was just beyond it. Small nucleus, much opaque matter, nearly all of which was coaxed away after	Favorable	None	Nov. 17th— Illiterate. + 13 D. = $\frac{6}{6}$ (counts letters). + 16 D. = 8 J. (counts letters).
20	42	S. T. Sept. 24th	F.	79	,,	Left; extraction up with iridectomy; iris caught on point of knife. Incision enlarged with secondary knife. Tyrrell's hook used to catch iris. Lens came away fairly clean. No soft matter removed after. No vitreous lost	Favorable	None	May 9th, 1887— + 13 D. = $\frac{6}{18}$. + 18 D. = 14 J.
59	43	J. L. Sept. 24th	F.	77	,,	Right; extraction up with iridectomy; incision nearly at sclero-corneal junction. Tyrrell's hook used for iris. Lens large and amber coloured	Favorable	None	Oct. 19th— + 12 D. = $\frac{4}{60}$. + 16 D. = 19 J. (letters).
58	44	S. D. Oct. 1st	F.	60	,,	Left; extraction up with iridectomy; Tyrrell's hook used, but iris slipped from it. Lens came away easily and apparently left no soft matter	Favorable	None	Oct. 15th— Illiterate. + 13 D. = $\frac{6}{6}$ (counts letters). + 16 D. = 6 J. (counts letters). Thin membrane in each with central slit.

Page in B. 86.	Report No.	Name and date.	Sex.	Age.	Anæsthetic.	Operation.	Progress of case.	Secondary operation.	Result.
72	45	E. L. Nov. 19th	F.	57	Cocain	Left; extraction up with iridectomy; incision more than usually corneal, its whole length except puncture and counter-puncture being in cornea. Lens presented at once on opening capsule. Rather hard, amber-coloured nucleus, much soft cortex	Favorable	None	Jan. 12th, 1887— Illiterate. + 9 D. = $\frac{6}{24}$. + 16 D. = 6 J. Narrow band of membrane from centre of iris below, running up to near wound.
75	46	W. E. Nov. 30th	M.	63	„	Left; extraction up with iridectomy; lens partly soft, small piece left. Portion of iris removed, smaller than usual; a little soft matter removed, but manipulation stopped in consequence of vitreous presenting	Favorable	None	Dec. 13th— + 12 D. = $\frac{6}{60}$. + 16 D. = 8 J. at 23 cm. Very thin membrane in pupil.

Table II.—*Operations for Removal of Soft Cataract*—12.

Mr. Nettleship's Cases (9).

7	47	F. H. Jan. 20th	M.	43	Cocain and pilocarpin	Left; incision on inner side with small keratome, and lens matter let out. Lens freely needled on previous day	Eye rather irritable. March 11th—Dots on cornea. A. c.? deeper than right	Jan. 22nd— More lens matter let out	March 8th— + 11 D. = $\frac{6}{24}$. + 16 D. = 1 J., partly.
13	48	A. J. P. Feb. 2nd	M.	10	„	Right; curette extraction. Needled January 22nd	Favorable	None	Feb. 16th— + 10 D. = board, but no letters. + 14 D. = 16 J.
13	49	A. J. P. Feb. 9th	M.	10	„	Left; curette extraction. Needled January 29th	Favorable	None	Feb. 16th— + 10 D. = $\frac{6}{36}$.

48	50	G. B. Feb. 20th	F.	7	Chloroform	Left; suction	Favorable	None	—
128	51	F. K. Aug. 6th	F.	22	Cocain	Left; curette extraction. Section nearly over coloboma. Not all lens removed	Favorable, some opaque lens matter and capsule in pupil	Aug. 17th—Needled. Aug. 27th—Capsule torn with Knapp's knife	Sept. 3rd— +11 D. S. + 3 D.C. / = $\frac{6}{12}$ partly. +15 D. = 1 J. at 20 cm.
183	52	W. W. Nov. 9th	M.	19	„	Left; corneal incision with Taylor's knife. The greater part of lens matter escaped by the side of suction syringe	Favorable	March 4th, 1887—Needled	March 21st, 1887— +15 D. = $\frac{6}{18}$. +20 D. = 1 J. at 20 cm.
189	53	E. P. Nov. 16th	F.	3	Ether	Right; incision with Taylor's knife, and greater part of lens removed with suction syringe. Needled November 12th	Favorable, anterior synechia kept eye irritable	Dec. 31st—Synechia divided with iridotomy shears	April 14th, 1887—Eye quiet.
190	54	J. P. Nov. 16th	M.	12	Cocain	Right; curette extraction	Favorable, eye kept rather irritable	None	Nov. 30th— +12 D. S. + 5 D. Cyl. = $\frac{6}{24}$. +16 D. = 6 J.
203	55	T. S. Nov. 30th	M.	19	„	Right; greater part of lens matter removed with suction syringe, after attempt to remove with curette	Favorable as to operation. But there was previous myopia, and afterwards the retina was found to be detached	None	P. l. not very good.

Mr. Lawford's Cases (3).

28	56	F. H. H. May 21st	M.	14	Cocain	Right; corneal incision out and up with broad needle. Capsule of lens opened, large quantity of lens matter removed with syringe. Pupil left black in greater part, but some matter left below. Was struck by a stone (size unknown) on May 9th	Favorable	None	Result good, no particulars.

Page in B. 86.	Report No.	Name and date.	Sex.	Age.	Anæsthetic.	Operation.	Progress of case.	Secondary operation.	Result.
34	57	M. R. June 4th	F.	11	Cocain	Right; some lens matter let out which came unwillingly. Was needled on May 28th, June 1st, and June 3rd	Favorable	Sept. 24th—Needled	Sept. 30th—+11 D. $=\frac{6}{24}$. Good central opening.
61	58	J. W. H. Oct. 10th	M.	10	Ether	Left; incision up and in with Taylor's knife. About half the lens matter removed with suction syringe	Eye remained irritable for a considerable time. Anterior synechia formed	Nov. 19th—Iris and part of lens capsule removed from adhesion	Feb. 2nd, 1887—Eye quiet.

NOTE.—In Table II, No. 47 was posterior polar cataract, No. 55 was a simple soft cataract, Nos. 50, 56, and 58 were traumatic, and the remainder lamellar, cataracts.

PRINTED BY ADLARD AND SON, BARTHOLOMEW CLOSE.

St. Thomas's Hospital

MEDICAL SCHOOL.

CALENDAR

AND

PROSPECTUS

FOR THE

YEAR COMMENCING OCTOBER 1ST, 1887.



1887 & 1888.

LONDON:

PRINTED BY WILLIAM CLOWES AND SONS, LIMITED,

STAMFORD STREET AND CHARING CROSS.




TABLE OF CONTENTS.

	PAGE
Winter and Summer Sessions	5
Introductory Address...	5
Annual Dinner	5
Historical Notice of the Hospital and School ...	5–15
General Description of the Hospital and School ...	15
Number of Patients	16
Nightingale Training School	16
Medical and Surgical Officers and Lecturers ...	17, 18
Lectures and Demonstrations	19
Tables of Days and Hours of Attendance ...	20, 21, 22
Special Departments	22
Suggestions to Students	23, 24
Fees	25, 26
Classes for London University Examinations ...	27, 28
Entrance and other Scholarships, Prizes and Appointments	28–31
Regulations for Examination and Classification of Students	31
Prize Lists	32–35
Museum	36, 37, 38
Medical and Physical Society	39
St. Thomas's Hospital Reports	40
Calendar	41–52
List of Students who have obtained Honours ...	53–68

Full information on all matters connected with the Medical School, Prizes, Scholarships, &c., will be obtained on application to the Medical Secretary, Mr. G. RENDLE, *at the Hospital, Albert Embankment, S.E.*

A Register of Lodgings suitable for Students has been recently revised, and is kept in the Secretary's Office. Information as to terms, accommodation, &c., can be obtained on application. This Register has been especially prepared with a view to the convenience of gentlemen newly arriving in town without definite arrangements having been made for their accommodation in lodgings or otherwise.

Several Medical Practitioners and Private Families residing in the neighbourhood receive Students for residence and supervision.

There is a Restaurant in the Medical School where Students can take their meals at moderate charges.

St. Thomas's Hospital

MEDICAL SCHOOL.

The WINTER SESSION 1887 – 88 will commence on SATURDAY, OCTOBER 1st, and terminate on MARCH 31st.

The SUMMER SESSION will begin on MAY 1st, and terminate on JULY 31st.

An Introductory Address will be given in one of the Theatres of the Hospital by

R. W. REID, Esq., F.R.C.S.,

on SATURDAY, October 1st, at 3 P.M., after which the various Departments of the Hospital and School will be thrown open in working order for the inspection of Visitors.

Refreshments will be provided in the Library.

The Annual Dinner, in which all former and present Students are invited to join, will take place the same evening in the Governors' Hall, at 6 for 6.30, Sir WILLIAM MACCORMAC, M.A., D.Sc., in the Chair.

The Annual Distribution of Prizes will be made during the Summer Session.

THE first hospital of St. Thomas, within the precincts of the Priory of St. Mary Overie, being destroyed by fire in the year 1207, the prior and convent erected in the same year near the site of their house a temporary hospital. This building was in the emergency used for religious purposes; mass was said there until the priory was rebuilt. In 1228 Peter de Rupibus, Bishop of Winchester, built the Hospital of St. Mary or St. Thomas, Overie, on the opposite or eastern side of the highway, on land provided by Amicius, Archdeacon of Surrey, and dedicated it to St. Thomas the Martyr.

The following is a translation of the "charter" of 1228:—

"The Lord Peter's charter of indulgence for twenty days granted by him for this hospital.

"Peter, by the grace of God Bishop of Winchester, to

all the faithful in Christ in the diocese of Winchester, greeting. In Him who is the salvation of the faithful. As saith the Apostle, bodily discipline which consists in fasts, vigils, and other mortifications of the flesh, profiteth little, while piety availeth for all things, having the promise of the life which now is, and of that which is to come.

"Our Lord Jesus Christ among the works of piety enumerates, commends, and teaches us to fulfil six, as though more praiseworthy and more meritorious than the rest, saying, 'I was an hungred, and ye gave Me to eat; I was thirsty, and ye gave Me to drink; I was a stranger, and ye took Me in; I was naked, and ye clothed Me; I was sick, and ye visited Me; in prison, and ye came to Me. To them that perform these works of piety He shall grant His blessing and the glory of His heavenly kingdom, saying, 'Come, ye blessed of My Father, receive the kingdom which has been prepared for you from the beginning of the world.' But to them that neglect and do not perform works of compassion He threatens His curse and the penalty of eternal fire, saying, 'Go, ye cursed, into eternal fire, which has been prepared for the devil and his angels.' It is therefore to be borne in mind, my dearest sons, and more deeply laid to heart, how needful and how conducive to the salvation of our souls it is to exercise more readily those works of piety whereby blessing is promised to us, and the felicity of eternal life is gained.

"Behold at Southwark an ancient hospital, built of old to entertain the poor, has been entirely reduced to cinders and ashes by a lamentable fire. Moreover, the place wherein the old hospital had been founded was less suitable, less appropriate for entertainment and habitation, both by reason of the straitness of the place, and by reason of the lack of water and of many other conveniences: according to the advice of us, and of wise men, it is transferred and transplanted to another more commodious site, where the air is more pure and calm, and the supply of waters more plentiful. But whereas this building of the new hospital calls for many and manifold outlays, and cannot be crowned

with its due consummation without the aid of the faithful, we request, advise, and earnestly exhort you all, and with a view to the remission of your sins enjoin you, according to your abilities, from the goods bestowed on you by God, to stretch forth the hand of pity to the building of this new hospital, and out of your feelings of charity to receive the messengers of the same hospital coming to you for the needs of the poor to be therein entertained, that for these and other works of piety you shall do, you may, after the course of this life, reap the reward of eternal felicity from Him who is the Recompenser of all good deeds, and the loving and compassionate God. Now we, by the mercy of God, and trusting in the merits of the glorious Virgin Mary, and the Apostles Peter and Paul, and St. Thomas the Martyr, and St. Swithin, to all the believers in Christ, who shall look with the eye of piety on the gifts of their alms—that is to say, having confessed, contrite in heart and truly penitent, we remit to such twenty days of the penance enjoined on them, and grant it to them to share in the prayers and benefactions made in the church of Winchester, and other churches erected by the grace of the Lord in the diocese of Winchester. Ever in the Lord; Farewell."

The Bishop of Winchester or the Archbishop seems to have granted, in 1277, to the Brethren power to elect their own Master; in a visitation, 1323, they are ordered to follow the rule of St. Augustine—the rule of the parent house—in obedience, chastity, renunciation of individual property, and the Master to eat with the Brethren.

In 1417 the Master and Brethren formed a Court of themselves, and exercised authority within the precincts of the Hospital over persons regular or secular, and in cases civil or even criminal.

The Hospital, built in 1228, had by 1507 become dilapidated and insufficient; great efforts were then made to rebuild and enlarge it.

In the Duchy of Lancaster records there is "the Rentall of Thomas Becketts hospitall in Southwarke, of all the lands and tenements belonging to the hospitall." It

contains the names of the tenants and the rents paid; it is without date, but from internal evidence must be early in the sixteenth century.

Within the precincts of the hospital was the renowned printing press of James Nycolson, who, in 1527, signed the contract for the painted windows of King's College, Cambridge, as "James Nycolson, of St. Thomas's Spyttell in Southwark." The most remarkable issue from this press was the first English Bible printed in England, inscribed thus—"Imprynted in Southwarke in St. Thomas Hospitale by James Nycolson. Dedicated by M. Coverdale to the King 1537."

About this time there were a Master, Brethren, and three Lay Sisters; forty beds were made up for poor, infirm, and impotent people, who were supplied with victuals and firing.

In the year 1535, Henry VIII. was excommunicated by Pope Paul III., and, declaring himself head of the church, proceeded to dissolve the Catholic houses, whose large revenues went to the Crown. There seem to have been 645 monasteries and abbeys thus treated, twenty-eight of which had abbots with seats in Parliament, ninety colleges and free chapels, and 110 hospitals of various descriptions. It is certainly in favour of the sweeping change that so able and honest a man as Sir Richard Gresham, the Lord Mayor of London, should have put his hand to the following petition to the King:

"Most redowted, puysant, and noble Prince * * * *—nere and within the cytie of London be iij hospitalls or spytells commonly called Seynt Georges Spytell, Seynt Barthilmews Spytell, and Seynt Thomas Spytell, and the new Abbey of Tower Hill, founded of good devotion by auncient fathers, and endowed with great possessions and rents only for the reliefe, comforte, and helping of the poore and impotent people lying in every street, offending every clene persone passing by the way with theyre fylthy and nasty savors. Wherefore may it please your merciful goodness, enclyned to pytie and compassion, for the reliffe of Xts very images, created to his own similitude, to order by your high authoritie, as supreme head of this Church of England, or otherwise by your sage discretion, that your mayer of your cytie of London,

and his brethren the aldermen for the time being, shall and may from henceforth have the order, disposition, rule and governaunce both of all the lands, tenements, and revenues apperteynyng and belongyn to the said Hospitals, governors of them, and of the ministers which be or shall be withyn any of them, and then your grace shall facilie perceyve that where now a small number of Chanons, Priests, and Monkes be founde for theyr own profitt only, and not for the common utilitie of the realme, a great number of poore, needy, syke and indugent persones shall be refreshed, maynteyned, and comforted; and also healed and cured of their infermities frankly and freely by physicions, surgeons and potycaries, which shall have stipende and salarie only for that purpose; so that all impotent persones not able to labour shall be releved, and all sturdy beggars not willing to labour shall be punished."

St. Thomas's Hospital being claimed by the King as Church property, was surrendered to him by Thomas Thirleby, the then master, on the 15th July, 1538. It was called St. Thomas à Becket's Spittil. Its yearly revenue was estimated at £266 17*s.* 6*d.*, and an annual pension of 5*s.* 8*d.* was payable by the master, and another of 2*s.* 1*d.* by the curate, to the Archdeacon of Surrey. Soon after the seizure, we find that the Citizens of London purchased of the Crown some of its landed estates, producing about £160 yearly. The want of the hospital thus destroyed was felt immediately. Wounded soldiers from the army in France, and the sick poor in general were without provision or help, and Henry proposed granting to the City the Mansion house of St. Bartholomew's, the dissolved house of Grey Friars adjoining, and the unoccupied fabric of St. Thomas's Hospital. The latter was intended by Henry to receive the name of the Hospital of the Holy Trinity, and to be allotted exclusively to lame, wounded, and diseased soldiers. The monastery of Grey Friars was to be for the education and maintenance of fatherless children and those of poor parents. The intentions of Henry were overtaken by death, but not before he had conferred upon the Citizens of London the Hospital of St Bartholomew's and also that of Bethlem for lunatics.

It is from the death of Henry that the connection of St. Thomas's Hospital with the city of London appears to begin. To meet the needs of the sick and destitute who had before depended on the charity of the religious houses, a Committee or Board of Inquiry was instituted by the Citizens, with the sanction of King Edward. About 2,100 souls were reported as fit recipients of relief, as fatherless children and invalids, or as "Idle rogues of both sexes who were levying contributions on public sympathy by feigned tales of sorrow." It was proposed to establish receptacles for each class in the unoccupied monastic buildings, and a pecuniary contribution was set on foot to complete the work. They bought the dissolved house of the Franciscans or Grey Friars near St. Bartholomew's Hospital, and also by charter from the King received a grant as follows: "That the said mayor, commonalty, and citizens, and their successors, may have and enjoy all the franchises, immunities, and privileges whatever, which any Archbishop of Canterbury, and which the said Charles late Duke of Suffolk, or any master, brethren, or sisters of the late Hospital of St. Thomas in Southwark aforesaid; or any Abbot of the said monastery of St. Saviour, Saint Mary Bermondsey, next Southwark aforesaid, or any prior and convent of the priory of St. Mary Overie, ever had or enjoyed, or which we hold or enjoy, or our most dear father Henry the VIIIth, late King of England, or had enjoyed, or ought to have, hold, and enjoy the same: and that none of our heirs or successors may intermeddle with this our grant."

The Greyfriars became Christ's Hospital, and the Southwark site the Hospital of the Holy Trinity or St. Thomas's. The Lord Mayor and certain citizens then met on the 6th of October, 1552, and constituted themselves by royal permission governors of the hospitals, and almoners of the money collected. The Hospital of the Holy Trinity they named, in compliment to Edward, the "King's Hospital," and ordained it to receive 260 "wounded soldiers, blind, maimed, sick, and helpless objects."

They also directed that 380 children should be received into Christ's Hospital.

To complete the scheme, the old palace of Bridewell, in Blackfriars, where the Emperor Charles V. had lodged in 1522, when on a visit to Henry VIII., and where subsequently Wolsey had lived, was granted to the City by Edward as a house of correction for dissolute persons and idle apprentices, and for the temporary maintenance of distressed vagrants.

Lastly, the lands lately belonging to the Palace of the Savoy were conferred jointly on the three foundations; and a month only before the end of Edward's short reign, he incorporated by a second charter bearing date the 6th of June, 1553, the Lord Mayor and commonalty of the City of London in succession as perpetual governors of Saint Bartholomew's, Christ's, Bridewell, and the king's Hospital (which last received the name of ST. THOMAS THE APOSTLE), and secured to them the possession of all the estates and revenues appertaining to them by previous deeds of gift. So were the royal hospitals founded.

In 1557 the laws were framed and printed under the name of "The Order of the Hospitalls of K. Henry the VIII. and K. Edward the VI., viz. St. Bartholomew's, Christ's, Bridewell, St. Thomas's. By the Maior, Cominaltie, and Citizens of London," &c.

Successive bequests and donations continued to augment the property of the charities, but during the reigns of Elizabeth, James I., Charles I., and the Protectorate, there appear few facts to note. In the abstract of the charter of confirmation granted to the City in 1663 by Charles II. on his restoration, we find the charter of Edward acknowledged and confirmed. The Great Fire of London in 1666 injured St. Thomas's in its revenues only; and a fire in Southwark anno 1676, ceased, "as if by divine interposition," at the Hospital, probably a strong and isolated block of building. Shortly after this, however, it was found necessary to rebuild the fabric, and in 1693 subscriptions were opened for this purpose. A long list of benefactions in this and the succeeding year, amounting in all to £37,769 3*s.*, is given by Golding, who especially singles out Sir Robert Clayton for eulogium. The statue then erected to him, and still extant,

was originally dated 1701, but this was altered on his death to 1714. He was the founder of the old square in which it stood, replacing what Golding terms "a low swampy structure of the monastic order." In 1707, Mr. Guy, founder of the neighbouring hospital, erected three wards at his own charge. In 1717, the back block of buildings adjoining Guy's Hospital was added. With the exception of the two large blocks forming the Borough frontage, the north wing erected in 1833, and the south wing in 1839, the fabric seems to have remained unchanged until its purchase by the railway. In the centre of the front quadrangle stood the brass statue of King Edward, by Scheemakers, erected first in 1737, in pursuance of the will of Charles Joye, some time treasurer of the Hospital. It now stands in the grounds of the New Hospital.

It is a matter of more difficulty to trace the early history of the medical school in connection with the hospital. For the facts which follow we are indebted to the late R. G. Whitfield, Esq., who, from the long period during which his family had been associated with this foundation, was perhaps more qualified to speak than any other person.

The earliest mention in the hospital books of an apprentice is on December 31st, 1561. It is not until 1702 that a law is met with precluding pupils or surgeons from dissecting the dead body without permission from the treasurer.

In 1703 the grand committee resolved that no surgeon should have more than three "Cubbs," a term altered in 1758 to that of "Dressers." Besides these there were also apprentices to the surgeons of the hospital, and ordinary pupils. The first mention of lectures occurs soon after the appointment of Wm. Cheselden, in 1718. These he at first gave at his own house, but afterwards by permission in the hospital. They were on anatomy and surgery. In 1723 a regular registry was ordered to be kept by the apothecary, of pupils entering to surgical practice. In 1725, Guy's Hospital was opened for the reception of patients. In 1751 the assistant-physician was allowed to take two pupils for his own benefit. In 1768, an additional surgeon, Mr. Joseph Else, was elected to read lectures to the pupils.

The students of Guy's Hospital had by courtesy been allowed to attend the operations, and a similar favour admitted the St. Thomas's men to those at Guy's. But on the 8th November, 1768, it was formally resolved that the pupils of each hospital have the liberty of attending not only the operations, but surgical practice, and the money to be divided between the six surgeons and two apothecaries. Hence the appellation of the "United Hospital"; an amalgamation never extended beyond the surgical practice.

To Mr. Else is due the foundation of a regular anatomical school. Mr. Cline, who in 1781 was appointed to read lectures conjointly with Mr. Else, was mainly instrumental in bringing it to its greatest celebrity. At Mr. Else's death, Mr. Cline purchased the collection of preparations made by him and Mr. Girle, a former surgeon, which are now in the hospital museum, and became sole lecturer on anatomy. In 1788 he also became surgeon to the hospital. Mr., afterwards Sir Astley, Cooper was apprenticed to Mr. Cline in 1784, and before his election, as one of the surgeons to Guy's Hospital in 1800, was joint lecturer with his teacher on anatomy and surgery. They both added materially to the pathological museum.

In 1812 Mr. Henry Cline was elected surgeon to St. Thomas's Hospital on his father's resignation, and carried on the anatomical lectures conjointly with Astley Cooper. In 1813 a new anatomical theatre and museum were built, the hospital giving £3000 for the purpose, and the two lecturers £1000 each. In 1815 Mr. Benj. Travers, an apprentice of Astley Cooper's at Guy's, was elected surgeon, according to the established rule which gave the vacancy to the senior apprentice of either institution. Mr. Travers joined in the lectures, devoting his attention specially to ophthalmic surgery. In 1820 Mr. Joseph Henry Green was elected surgeon on the death of his cousin Mr. Hy. Cline, having been apprenticed to his uncle Mr. Cline in the year 1809. From 1820 to 1825 he lectured with Astley Cooper. At this period all the branches of medical study,—viz., medicine, chemistry, materia medica, midwifery, botany, and physiology

—were lectured on at Guy's Hospital, and no physician of St. Thomas's was allowed to share them.

In 1824 Sir A. Cooper resigned the surgical chair, and Mr. C. Aston Key, his apprentice and nephew by marriage, joined Mr. Green in the office. Mr. Frederick Tyrrell, standing in exactly the same relation to Cooper, received permission to lecture on diseases of the eye. In the following year Cooper showed signs of cerebral disturbance, and the family desired that his nephew, Mr. Bransby Cooper, should be his successor. But the claims of Mr. John Flint South were considered superior, and he was appointed. From this cause the "United Hospitals" were severed, and a complete school set up in both. The majority of the students clung to Guy's, where the prestige of the great Sir Astley was still strong; and St. Thomas's school began to sink. The establishment of the Aldersgate Street private school under Tyrrell and Lawrence materially aided in this declension, as did also the secession of Dr. Elliotson to the newly-established University College, and the foundation of a fresh school at King's College, where for a time the surgical lectures were given by Mr. Joseph Henry Green, although a surgeon of St. Thomas's.

Owing to the unprosperous state of affairs in 1842, the Governors came forward to reorganize the school, and the aid of Mr. R. D. Grainger, whose popularity had been established in the Webb Street private school, was obtained. Mr. Joseph H. Green also rejoined the school; and Dr. Marshall Hall, Dr. Hodgkin, Dr. Martin Barry, Dr. Gregory, and Mr. Benjamin Travers contributed to its efficiency. This state of affairs continued until 1858, when the Governors gave back the management, and its attendant risks, into the hands of the lecturers.

For some years it was maintained with difficulty, and much self-sacrifice on the part of the staff, during what may be termed a transitional period, in the hope, now realized, of its once more developing into an institution worthy of its old traditionary glories.

From its foundation down to the year 1862, the Hospital

occupied the original site near London Bridge, but in that year the property was sold for the extension of the railway accommodation, and the establishment temporarily removed to the Surrey Gardens, where it was carried on till the Summer of 1871. In 1868 the first stone of the new Hospital at Westminster Bridge was laid by the Queen, and the completed building was opened by Her Majesty in 1871. In September the patients were first admitted into the new Hospital, and the Medical School was opened on October the 2nd.

The original Hospital latterly contained 500 beds. The present building contains in all 572 beds. It consists of six blocks appropriated to the reception of patients; with one for the administrative and other offices, and one for the Medical School. The Ward blocks, though connected by corridors, stand apart, so as to afford free exposure in all directions. The Wards, with the exception of four which are placed on the ground floor, occupy the first, second, and third floors. Generally, each Ward affords accommodation for 28 beds, which are placed against the piers between the windows, so as to secure thorough ventilation. In a small Ward annexed to each larger Ward, there are two beds for cases requiring special care or treatment.

Of the whole accommodation of the Hospital, about 180 beds are appropriated to ordinary Medical cases, and 230 to ordinary Surgical cases. There are also special Wards for the reception of diseases peculiar to women; for diseases of the eye; for venereal affections; and for children under six years of age. In one of the blocks, separated from the rest of the establishment, there are Wards for infectious diseases.

The space provided for each bed in the ordinary Wards is upwards of 1,800 cubic feet, and in the block appropriated to infectious diseases, about 2,500 cubic feet.

The Out-patients' Department is extensive and well arranged, and every facility is afforded for the treatment of different forms of Medical and Surgical casualties and diseases.

During the twelve months ending December 31st, 1886, the number of patients admitted into the Hospital amounted

to 4,643. In the same period, 24,826 Out-patients have been treated, and in the Maternity department 1,941 women have been attended at their own homes. Casualties, to the number of 62,775 attendances, were treated during the same period.

The School buildings stand at the southern extremity of the Hospital, from which they are quite isolated. They contain ample accommodation for large classes of students.

The Museum is one of the most important in the metropolis. There is a large Reading Room and Library for the use of the pupils.

In addition to these are the various Lecture Rooms, the Dissecting Rooms, the Laboratories for Practical Physiology and for Practical Chemistry, and the Post-mortem Rooms.

The Committee of the "NIGHTINGALE FUND" have arrangements with the authorities of St. Thomas's for educating Women as Hospital Nurses. On the satisfactory completion of one year's training, they will be required to enter into service as Nurses in the Metropolitan or Provincial Hospitals or Infirmaries. A limited number of gentlewomen can be admitted under special agreements to this course of training, with a view to qualify themselves for superior appointments.

The Regulations as to the admission of Candidates may be obtained by writing to Henry Bonham-Carter, Esq., the Secretary of the Nightingale Fund, 5, Hyde Park Square, London, W.

Institutions requiring trained Superintendents or Nurses are requested to apply to the Secretary of the Nightingale Fund, or to Miss A. L. Pringle, the Matron of the Hospital, giving as long previous notice as possible of their requirements.

Women wishing to be trained should, whenever it is possible, make personal application to Miss Pringle, to be entered on the list of Candidates, for admission as vacancies occur.

MEDICAL OFFICERS, LECTURERS, &c.,

OF

ST. THOMAS'S HOSPITAL

AND

MEDICAL SCHOOL.

CONSULTING PHYSICIANS.

T. A. Barker, M.D. Cantab. et Edin. 109, Gloucester Place, Portman [Square, W.
Sir J. Risdon Bennett, M.D. Edin., F.R.S. 22, Cavendish Square, W.

CONSULTING SURGEONS.

F. Le Gros Clark, Esq., F.R.S. .. Sevenoaks, Kent.
Sir John Simon, K.C.B., Hon. M.D. Dublin, F.R.S., D.C.L. .. .. .. 40, Kensington Square, W.

CONSULTING OPHTHALMIC SURGEON.

R. Liebreich, Esq. .. .. 29B, Albemarle St., W.

PHYSICIANS.

J. S. Bristowe, M.D. Lond., LL.D., F.R.S. 13, Old Burlington Street, W.
W. H. Stone, M.A., M.B. Oxon. .. 14, Dean's Yard, Westminster, S.W.
W. M. Ord, M.D. Lond. .. .. .. 37, Upper Brook Street, W.
John Harley, M.D. Lond. .. .. .. 9, Stratford Place, W.
J. F. Payne, M.D. Oxon. .. (Hon.) .. 78, Wimpole Street, W.

OBSTETRIC PHYSICIAN.

H. Gervis, M.D. Lond. .. .. .. 40, Harley Street, W.

SURGEONS.

Sydney Jones, Esq., M.B. Lond. .. 16, George St., Hanover Sq., W.
John Croft, Esq. .. .. 48, Brook St., Grosvenor Sq., W.
Sir William Mac Cormac, M.A., D.Sc. M. Ch. Hon. Caus. .. .. 13, Harley Street, W.
A. O. Mac Kellar, Esq., M. Ch. .. 22, George St., Hanover Sq., W.

OPHTHALMIC SURGEON.

E. Nettleship, Esq. .. .. 5, Wimpole Street, W.

ASSISTANT PHYSICIANS.

Seymour J. Sharkey, M.A., M.B. Oxon. 2, Portland Place, W.
George Gulliver, M.A., M.B. Oxon. 16, Welbeck Street, W.
W. B. Hadden, M.D. Lond. .. .. 21, Welbeck Street, W.
T. D. Acland, M.A., M.D. Oxon. .. 7, Brook Street, W.

ASSISTANT OBSTETRIC PHYSICIAN.

R. Cory, M.A., M.D. Cantab. .. .. 73, Lambeth Palace Road, S.E.

ASSISTANT PHYSICIAN FOR DISEASES OF THROAT.

F. Semon, M.D. Berlin .. .. .. 39, Wimpole Street, W.

ASSISTANT SURGEONS.

H. H. Clutton, Esq., M.A. Cantab. 2, Portland Place, W.
W. Anderson, Esq. .. .. 25, Grosvenor Road, S.W.
B. Pitts, Esq., M.A., M.C. Cantab. 31, Harley Street, W.
G. H. Makins, Esq. .. .. 2, Queen Street, Mayfair, W.

MEDICAL OFFICERS, &c.—*continued.*

ASSISTANT OPHTHALMIC SURGEON.

J. B. Lawford, Esq. .. .. .. 6, Upper Wimpole Street, W.

DENTAL SURGEON.

C. E. Truman, Esq., M.A. Cantab. .. 23, Old Burlington Street, W.

ASSISTANT DENTAL SURGEON.

RESIDENT ASSISTANT PHYSICIAN.

H. W. G. Mackenzie, M.A., M.B. Cantab. .. .. St. Thomas's Hospital, S.E.

RESIDENT ASSISTANT SURGEON.

W. H. Battle, Esq. .. .. St. Thomas's Hospital, S.E.

ANÆSTHETISTS.

Walter Tyrrell, Esq. .. .. .. 95, Cromwell Road, S.W.
E. F. White, Esq., F.R.C.S. .. .. 7, Dealtry Road, Putney, S.W.

ELECTRICIAN.

W. J. Kilner, B.A., M.B. Cantab. .. 57, Queen Anne Street, W.

APOTHECARY.

S. Plowman, Esq., F.R.C.S. .. .. St. Thomas's Hospital, S.E.

DEMONSTRATORS OF MORBID ANATOMY.

S. J. Sharkey, M.A., M.B. Oxon. .. 2, Portland Place, W.
W. B. Hadden, M.D. Lond. .. .. 21, Welbeck Street, W.

ANALYTICAL CHEMIST.

Albert J. Bernays, Ph.D., F.C.S., F.I.C. Acre House, 2, Brixton Hill, S.W.

LECTURERS.

A.W. Bennett, Esq., M.A., B.Sc. Lond., F.L.S. — 6, Park Village East, Regent's Park, N.W.
T. Cranstoun Charles, M.D. .. .. — 9, Albert Mansions, Victoria St., S.W.
H. Rayner, M.D. .. .. — Hanwell, W.
R. W. Reid, Esq., C.M., F.R.C.S. .. — 75, Lambeth Palace Road, S.E.
Edward Seaton, M.D. Lond. .. .. — 35, George St., Hanover Square, W.
C. S. Sherrington, M.A., M.B., Cantab.

REGISTRARS.

Medical—W. B. Hadden, M.D. Lond.

Surgical—C. A. Ballance, Esq., M.B., M.S. Lond.

CURATOR OF THE MUSEUM.

S. G. Shattock, Esq., F.R.C.S.

LIBRARIAN.

R. B. Boswell, Esq., M.A. Oxon.

DEAN OF THE SCHOOL.

W. M. Ord, M.D.
37, Upper Brook Street, W.

VICE-DEAN OF THE SCHOOL.

R. W. Reid, Esq., C.M., F.R.C.S.,
75, Lambeth Palace Road, S.E.

SECRETARY TO THE SCHOOL.

George Rendle, Esq., M.R.C.S. .. Egerton House, Forest Hill, S.E.

LECTURES AND DEMONSTRATIONS.

Medicine	Dr. Bristowe. Dr. Ord.
Clinical Medicine	Dr. Bristowe. Dr. Stone. Dr. Ord. Dr. Harley. Dr. Payne.
Do. *Obstetric*	Dr. Gervis.
Surgery	Mr. Sydney Jones. Sir William Mac Cormac.
Clinical Surgery	Mr. Sydney Jones. Mr. Croft. Sir William Mac Cormac. Mr. Mac Kellar.
Do. *Special Course* ..	Mr. Croft.
Descriptive Anatomy	Mr. Reid. Mr. Anderson.
General Anatomy and Physiology ..	Dr. Sherrington.
Practical Physiology	Dr. T. Cranstoun Charles.
Diseases of the Eye	Mr. Nettleship.
Chemistry and Practical Chemistry ..	Dr. Bernays.
Midwifery, and the Diseases of Women and Children	Dr. Gervis.
Physics and Natural Philosophy ..	Dr. Stone.
Materia Medica and Therapeutics ..	Dr. Stone and Mr. Plowman.
Forensic Medicine and Toxicology	Mr. Clutton, Dr. Bernays, and Dr. Cory.
Pathological Anatomy	Dr. Payne and Dr. Sharkey.
Botany	Mr. A. W. Bennett.
Comparative Anatomy	Dr. Gulliver.
Mental Disease	Dr. H. Rayner.
Public Health and Sanitary Science ..	Dr. E. Seaton.

TEACHERS OF PRACTICAL SUBJECTS AND DEMONSTRATORS.

Practical Chemistry	Dr. Bernays.
Practical and Manipulative Surgery	Mr. Mac Kellar, Mr. Clutton, and Mr. Pitts.
Demonstrations in Anatomy	Mr. Reid, Mr. Anderson, Dr. Taylor, Mr. Makins.
Demonstrations in Morbid Anatomy ..	Dr. Sharkey and Dr. Hadden.
Demonstrations in Morbid Histology *Demonstrations in Physiology* .. *Demonstrations in Practical Physiology*	Dr. Copeman.
Diseases of the Eye	Mr. Nettleship and Mr. Lawford.
Diseases of the Skin	Mr. Anderson.
Diseases of the Throat	Dr. F. Semon.
Diseases of the Ear	Mr. Clutton.
Diseases of the Teeth	Mr. C. E. Truman. (Vacant.)

TIMES OF ATTENDANCE OF THE PHYSICIANS AND SURGEONS IN THE WARDS.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Dr. BRISTOWE	—	2	—	—	2	—
Dr. STONE	2	—	—	2	—	—
Dr. ORD	2	—	—	2	—	—
Dr. HARLEY	—	2	—	—	2	—
Dr. PAYNE (Hon.)	2	—	—	—	2	—
Dr. GERVIS	—	2	—	—	2	—
Mr. SYDNEY JONES	—	2	—	—	2	—
Mr. CROFT	2	—	—	2	—	—
Sir WILLIAM MAC CORMAC	2	—	—	2	—	—
Mr. MAC KELLAR	—	2	—	—	2	—
Mr. NETTLESHIP	—	2	—	2	—	—

TIMES OF ATTENDANCE OF THE ASSISTANT-PHYSICIANS AND ASSISTANT-SURGEONS ON THE OUT-PATIENTS.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Dr. SHARKEY	1.30	—	—	1.30	—	—
Dr. GULLIVER	—	1.30	—	—	1.30	—
Dr. HADDEN	—	—	1.30	—	—	1.30
Dr. ACLAND	1.30	1.30	—	—	—	—
Dr. CORY (Women and Children)	—	—	1.30	—	—	1.30
Mr. CLUTTON	—	1.30	—	—	1.30	—
Mr. ANDERSON	1.30	—	—	1.30	—	—
Mr. PITTS	—	—	1.30	—	—	1.30
Mr. MAKINS	1.30	1.30	—	—	—	—

TIMES OF ATTENDANCE IN THE OUT-PATIENT SPECIAL DEPARTMENTS.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Mr. NETTLESHIP, Mr. LAWFORD (Diseases of the Eye)	—	1.30	—	1.30	1.30	—
	1.30	—	1.30	—	—	—
Mr. ANDERSON (Diseases of Skin)	—	—	1.30	—	—	—
Dr. SEMON (Diseases of Throat)	—	1.30	—	—	1.30	—
Mr. CLUTTON (Diseases of Ear)	1.30	—	—	—	—	—
Mr. TRUMAN, (Vacant.) (Diseases of Teeth)	—	10	—	—	10	—
Dr. CORY (Vaccination)	—	—	11.30	—	—	—

DAYS AND HOURS OF LECTURES AND DEMONSTRATIONS.

WINTER SESSION.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Years of Attendance.
Physics	—	—	—	—	—	12	1st Year.
Chemistry	—	10.30	—	10.30	10.30	—	do.
Descriptive and Surgical Anatomy	—	9.30	—	9.30	—	9.30	do.
	11	11	—	11	—	11	2nd Year.
Anatomical Demonstrations*	10½–4½	10½–4½	10½–4½	10½–4½	10½–4½	10½–1	1st & 2nd.
Physiology	9.30	—	9.30	—	9.30	—	do.
Physiological Demonstrations	10.30	12	—	12	12	—	1st Year.
	12	12	—	12	10.30	—	2nd Year.
Practical and Manipulative Surgery†	—	—	—	—	—	9	3rd Year.
Medicine (Oct., Nov., Dec.)	9	—	—	9	9	—	do.
Medicine (Jan., Feb., Mar.)	4	—	—	4	4	—	
Surgery (Oct., Nov., Dec.)	4	—	—	4	4	—	do.
Surgery (Jan., Feb., Mar.)	9	—	—	9	9	—	
Pathological Anatomy (Practical)	—	—	—	—	—	11½–1½	3rd or 4th.
Diseases of the Eye (Oct., Nov., Dec.)	5	—	—	5	5	—	do.
Clinical Surgery (Special Course)	—	9	—	—	—	—	do.
Obstetric Demonstrations	—	—	9	—	—	—	do.

SUMMER SESSION.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Years.
Botany	—	10	10	—	—	10	1st Year.
Materia Medica	12	—	12.30	—	12	—	do.
Practical Chemistry	10—12	—	—	10—12	10—12	—	do.
Practical Physiology	See Note	2	2	—	2	—	do.
Anatomical Demonstrations*	10—12	2—4	—	10—12	2—4	—	2nd Year.
Midwifery	4	4	—	4	4	—	do.
Comparative Anatomy	9	—	—	9	—	—	do.
Practical and Manipulative Surgery†	—	—	—	—	9	—	do.
Forensic Medicine	—	9	—	9	—	9	3rd Year.
Pathological Anatomy	—	—	9	—	9	—	do.
Do. Demonstration	4	—	—	—	—	—	do.
Mental Diseases	—	—	—	—	12	—	3rd. or 4th.
Public Health and Sanitary Science	—	—	10.30	—	—	—	do.
Examination of the Eye	—	5	—	—	5	—	do
Clinical Surgery (Special Course)	9	—	—	—	—	—	do.

The times of delivery of the Clinical Lectures are arranged, in accordance with other work, in the course of the Session.

NOTE.—On Mondays, at 2 p.m., during the Summer Session, Dr. CHARLES gives instruction to a Senior Class in ection Cutting and Mounting, in Volumetric Analysis, and in the use of Physiological Apparatus.

* The Dissecting Room is open to the Students from 9 a.m. till 5 p.m. Special Tutorial Classes in Anatomy are eld by the Lecturers and Demonstrators preparatory to the Second Examinations of the Examining Board in England.

† Classes in Practical and Operative Surgery are held four times a week for six weeks prior to the final exami- ations of the Examining Board in January, April, and July. In connection with these Classes Clinical Instruction given in the Wards by the Resident Assistant Surgeon, and a course of demonstrations on Museum specimens is ven by the Curator, Mr. SHATTOCK.

SURGICAL OPERATIONS are performed on Wednesdays and Saturdays at 1.30 p.m., and on other days in cases of emergency.

In-Patients are admitted daily at 11.30 a.m.

Out-Patients are seen by the Assistant-Physicians and Assistant-Surgeons on the days stated in the Table (see p. 20). *Diseases of Women and Children* are treated, on Wednesdays and Saturdays at 1.30, by Dr. CORY.

Casual Patients are seen by the Resident Assistant-Physician, the Resident Assistant-Surgeon, the House-Surgeons, Assistant House-Surgeons and Dressers at 12 noon.

SPECIAL DEPARTMENTS.

(*For Times of Attendance see Table, page* 20.)

Diseases of the Eye.—Operations are performed at 4 p.m. on Tuesdays, and at 2 p.m., on Fridays. Ophthalmoscopic Demonstrations and Clinical Lectures on Diseases of the Eye are given every week, and a class for learning the use of the Ophthalmoscope is held each Session, by Mr. NETTLESHIP and Mr. LAWFORD.

Diseases of the Skin.—Instruction is given by Mr. ANDERSON on Wednesdays at 1.30 p.m.

Diseases of the Throat.—A short Course of Clinical Lectures is given to senior students by Dr. SEMON during the Winter Session.

Diseases of the Ear. — Instruction is given by Mr. CLUTTON on Mondays at 1.30 p.m.

Diseases of the Teeth.—Mr. TRUMAN and Mr. give instruction in Dental Surgery on Tuesdays and Fridays at 10 a.m.

Vaccination.—Practical Instruction is given by Dr. CORY once a week.

NOTE.—St. Thomas's Hospital is now recognised as a Local Vaccination Station, and Dr. CORY is authorised to give certificates of instruction in Vaccination according to the requirements of the Local Government Board. Fee One Guinea.

Post-Mortem Examinations and Pathological Demonstrations, by Dr. SHARKEY and Dr. HADDEN, Monday to Friday at 2 p.m., Saturday at 3 p.m.

Practical Instruction in the Administration of **Anæsthetics** is given by Mr. TYRRELL and Mr. WHITE.

In addition to the Clinical Instruction given in the Wards and the Out-Patients' Rooms by the Medical and Surgical Officers, and the Special Course of Clinical Surgery, Lectures on Clinical Medicine are delivered weekly during both the Winter and Summer Sessions by the Physicians, and on Clinical Surgery by the Surgeons, on the visiting day following their "taking-in" week, and a Course of Clinical Lectures on the Diseases of Women is given during the Winter Session by the Obstetric Physician.

SUGGESTIONS TO STUDENTS.

Gentlemen who propose to obtain the Licence of the Royal College of Physicians of London and the Diploma of Member of the Royal College of Surgeons of England, or the Licence of the Society of Apothecaries, must, in order to be able to register their attendance upon Hospital practice or lectures, possess the certificate in Arts granted by one of the bodies whose certificates are recognised by the General Medical Council. "The Regulations of the General Medical Council in regard to the Registration of Medical Students" contain particulars of the Preliminary Examinations, and can be had from Messrs. Spottiswoode & Co., 54, Gracechurch Street, E.C.

Students intending to obtain Medical Degrees in the University of London must pass both the Matriculation * and the Preliminary Scientific Examinations before commencing their regular Medical Studies.

For the Preliminary Scientific, and the Intermediate M.B. Examinations, Special Classes are held (see p. 27). Students not proceeding to degrees in the University of London, will reap much advantage by acquiring, in the Preliminary Scientific Class, the scientific knowledge and training demanded by the University ; both in respect to the formation of a sound foundation for Medical Study and because such knowledge is necessary in competing for the Entrance Science Scholarships.

Students proposing to enter should put themselves, at an early period, in communication with the Medical Secretary, who will be always ready to advise them. It is necessary, when writing to him, to state what Preliminary Examination has been passed, and if the Student's name has been registered at the Medical Council Office.

Students on joining must produce a Certificate of Preliminary Examination or of Registration. It is best to join at the beginning of a Session, Winter or Summer, but it is in the power of a Student to enter at any time.

Students are not obliged to remain at the Hospital more than three years, provided they have obtained the certificates of attendance upon lectures required by the respective licensing bodies. They must, however, in the event of leaving the Hospital, be engaged during the fourth year in the acquisition of professional knowledge elsewhere.

It is right, however, that Students should be made aware that the loss of the fourth year of Hospital Study is strongly to be deprecated, since

---

* *Candidates who passed the Matriculation Examination in January*, 1885, *or previously, will be allowed to date the commencement of their Professional Studies from that Examination in accordance with former Regulations.*—University of London Calendar 1887-8, p. 159, Note.

at that period the necessity for attending Lectures has ceased, and their whole time can be spent in the study of disease in the wards of the Hospital.

Students, when qualified, are advised to use every effort to obtain the Senior appointments open to them, especially those of Non-resident House Physician, House Physician, Assistant House Surgeon, House Surgeon, and Resident Accoucheur. These appointments are accessible to Students of the Hospital without payment, and offer opportunities for obtaining practical professional knowledge, which cannot be estimated too highly.

Students are recommended to attend the Lectures, &c., in the following order; and, in accordance with the Regulations of the Qualifying Bodies, are required to show by their answers in the Sessional Examinations, that they have paid proper attention to the Lectures in each Course.

FIRST YEAR.

Winter Session.—Anatomy, Dissections, Physiology, Chemistry.

Summer Session.—Materia Medica, Botany, Practical Physiology, Practical Chemistry.

SECOND YEAR.

Winter Session.—Anatomy, Physiology, Dissections.

Summer Session.—Midwifery, Comparative Anatomy, Practical Surgery, Clinical Medicine, Clinical Surgery.

N.B.—Students should defer further attendance on Lectures until they shall have passed the Second Examination of the Examining Board in England.

THIRD YEAR.

Winter Session.—Medicine, Surgery, Practical Surgery, Clinical Medicine, Clinical Surgery.

Summer Session.—Forensic Medicine, Pathological Anatomy, Clinical Medicine, Clinical Surgery.

FOURTH YEAR.

Students will find it practically necessary under the Regulations of the Examining Board in England, to spend their Fourth Year in the Study of Clinical Medicine, Surgery, and Midwifery. No Student can be admitted to the Final Examination of that Board, until two years shall have elapsed subsequent to his having passed the Second Professional Examination, which cannot be done until after the Second Winter of Study.

In addition to the above, Students are advised, during their first Winter Session, to attend the Lectures on Physics and Natural Philosophy; in their third or fourth Summer Session, to attend the Lectures on Mental Disease, and on Public Health; and in the third or fourth Winter the Practical Course of Pathological Anatomy, and the Obstetric Demonstrations. The Course on Diseases of the Eye, and the teaching in the Eye Department should be attended in the third and fourth years. All these Courses are freely open to Students of the Hospital.

FEES FOR ATTENDANCE ON THE LECTURES AND ON THE PRACTICE OF THE HOSPITAL.

PERPETUAL TICKETS.

Admitting to Hospital Practice and Lectures for an unlimited period.

The Perpetual Fee to Hospital Practice and Lectures may be paid in several ways:

1st. One Hundred and Twenty-five Guineas paid on entrance;

2nd. One Hundred and Thirty-eight pounds in two payments, £75 on entrance, and £63 at the beginning of the next year;

3rd. Payment by three instalments, viz., of £65 at the beginning of the first year, £50 at the beginning of the second year, and £30 at the beginning of the third year.

Gentlemen entering at St. Thomas's in the second* year of their Studentship pay £65 for that year; £25 for the third year; or upon paying £85 on entrance, they will become Perpetual Students. Students entering in their third year pay £40; for the next year £20, or one payment of £55 on entrance will entitle them to be Perpetual Students.

The Fee for attendance on the *general* subjects required of Students in Dental Surgery, is for the two years, £55, or by instalments, £50 for the first year, and £10 for the second year. If certificates for *Dental* practice are also required, the special fee for that subject (page 26) has to be paid.

Regularly qualified Medical Practitioners are admitted to the Hospital practice, and to the Lectures and Library, on payment of a fee of £12 10*s.* for unlimited attendance; but are not entitled to receive certificates for such attendance without payment for the special certificates required (see p. 26).

All privileges in respect of Hospital attendance are granted subject to the approval of the Governors, and Students must conform to the regulations of the Hospital and Medical School, on which understanding alone cards of attendance are granted.

EXTRA CHARGES.

Students are now supplied with chemicals and materials to work with in the courses of Chemistry and Physiology without extra charge, but there are certain instruments and materials required during the course of study, as follows, viz.:

* Students who have commenced the study of the Profession otherwise than by attendance at a Medical School, will be considered to be first year's Students on joining the Medical School, as the time previously spent does not count until three years' Lectures have been attended, but a deduction from the Perpetual Fee will be allowed in such cases.

NOTE.—Cheques may be made payable to the Medical Secretary, and crossed "London and County Bank, Lambeth."

Those attending the Class of Practical Physiology in the summer must provide themselves with Microscopes.

Students Dissecting pay for the parts they dissect at fixed rates, which are notified in the Library.

Each Clinical Clerk must provide himself with a Stethoscope and Registering Clinical Thermometer. Each Dresser is required to have a Registering Clinical Thermometer, a Pocket Case of Instruments, and a Case of Silver Catheters.

The fee for Practical Pharmacy is not included in the Perpetual fee, as many Students have received instruction in it before joining a Medical School; but instruction in Pharmacy and Pharmaceutical Manipulation, to meet the requirements of the Examining Board in England, and of the Society of Apothecaries, is given in the Dispensary of the Hospital by the Apothecary, Mr. S. PLOWMAN. The fee for this course is 5 Guineas for three months. Application to be made to the Medical Secretary.

The different Courses of Lectures, or the Hospital Practice, may also be attended separately on the following terms, which entitle to Certificates for such Attendances.

For the Medical and Surgical Practice, including Clinical Lectures and the Special Departments.

Three months	£15	Twelve months	£40
Six ditto	£26	Perpetual	£55
Nine ditto	£35		

Dental Practice, 1 year 2 Gs., Perpetual 3 Gs.

Midwifery Practice, 5 Gs. Ophthalmic Practice, 2 Gs.

For Lectures and Demonstrations.	1 *Course.*	*Perpetual.*
Medicine, Surgery, Physiology, Anatomy, Chemistry each	7 Gs.	10 Gs.
Midwifery	5 „	6 „
Materia Medica, Botany, Physics, Forensic Medicine, Pathological Anaty., and Comparative Anaty. each	4 „	5 „
Mental Diseases, Diseases of the Eye, Public Health each	2 „	3 „
* Practical Chemistry, Practical Surgery, Practical Physiology, Pathological Anatomy including the Practical Course .. .. each	6 „	—

Dissections, three months 4 Gs., six months 6 Gs., Perpetual 10 Gs.

Operative Surgery.—A voluntary class will be formed by Messrs. CLUTTON and PITTS during the Summer, and at other convenient times, for Gentlemen who wish to prepare for the Fellowship or other Examinations. This course will not include Operations on the Eye-ball. Fee, £5 5*s*.

Operative Surgery of the Eye.—A voluntary class will be formed by Mr. LAWFORD during the Summer. Fee, £2 2*s*.

Advanced Anatomy.—Voluntary classes for the M.B. Examinations of Oxford and Cambridge and for the Fellowship of the Royal College of Surgeons will be formed by the Lecturers on Anatomy, commencing in the months of February and September. Fee, £6 6*s*.

Laryngology.—A special course is given by Dr. SEMON during the Winter Session. Fee for Gentlemen, not Students of the Hospital, 3 Gs.

Special Courses of Obstetric Demonstrations are given by Dr. CORY throughout the year. Fee, £3 3*s*.

Public Health and Sanitary Science.—Lectures are open to Gentlemen, not Students of the Hospital, and instruction will be given specially to Candidates for Certificates and Examinations in Sanitary Science and Hygiene.

* These amounts do not include the extra charges in the Practical Courses for Materials, Instruments, &c.

UNIVERSITY OF LONDON.

PRELIMINARY SCIENTIFIC AND INTERMEDIATE M.B. CLASSES.

PRELIMINARY SCIENTIFIC EXAMINATION.

Special Classes in the subjects required for the Preliminary Scientific Examination at the University of London, will be held from October to July, and Students joining the Classes are allowed to attend the Courses of Lectures on Chemistry in the Winter, and on Botany and Comparative Anatomy in the Summer.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Botany. A. W. BENNETT, M.A.	—	—	11	—	—	—
Chemistry, Inorganic } Dr. BERNAYS	Winter 11.30		—	—	—	—
„ Practical } Dr. BERNAYS	Summer 11		—	12	—	—
	—	—	—	Winter	11.30	—
Physics. W. H. STONE, M.A., M.B.	—	—	—	—	January to July 3	Winter 12
Zoology. G. GULLIVER, M.A., M.B..	—	—	Winter 1.30	Summer 13.0	—	—

N.B.—A Microscope and simple Dissecting Apparatus must be provided by each Member of the Class.

Fee to Students of the Hospital, inclusive of Practical Chemistry and Chemicals .. .. .. *Ten Guineas.*
To others, ditto .. .. .. *Twelve Guineas.*
Fee for any single subject .. .. *Four Guineas.*
Subsequent Courses, half Fee, if recommended by the respective Teachers (except Chemicals, for which a charge of One Guinea and a half is made).

INTERMEDIATE EXAMINATION IN MEDICINE.

Special Classes in the subjects required for the January and July Examinations are held from October to July.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Anatomy. R. W. REID, C.M., F.R.C.S.	3	—	—	3	—	—
Materia Medica and Pharmaceutical Chemistry. } S. PLOWMAN, F.R.C.S.	—	3	—	—	3	—
Organic Chemistry } Dr. BERNAYS. ..	—	—	11	—	—	—
Organic Analysis } Dr. BERNAYS. ..	—	—	—	—	—	10
Physiology. T. C. CHARLES, M.D. ..	—	—	—	—	Winter 2 Summer 1	—

Fee to Students of the Hospital inclusive of
Organic Analysis and Chemicals* .. .. .. *Nine Guineas.*
To others ditto .. .. *Twelve Guineas.*
Fee for any Single Subject .. .. *Three Guineas.*

Subsequent Courses, half Fee (except Chemicals, for which full fee is charged).

* Instruction and Practice in Organic Analysis is essential for this Examination.

N.B.—Private Classes are held for the Final M.B. Examination.

SCHOLARSHIPS, PRIZES, APPOINTMENTS, AND HONORARY DISTINCTIONS.

OPEN SCHOLARSHIPS IN NATURAL SCIENCE.

As an inducement to the study of Natural Science before the commencement of the strictly Medical Course, two Scholarships, of the value of 125 Guineas and £60 respectively, are awarded annually, after an examination in Physics, Chemistry, and either Botany or Zoology, at the option of Candidates. The Examinations for these Scholarships will be held on October 3rd, 4th, and 5th, 1887, the subjects being the same as those for honours in the Preliminary Scientific Examination of the London University, viz.: Botany, Zoology, Inorganic Chemistry (including Practical Chemistry), and Physics or Natural Philosophy. These Scholarships are open to all Students who have passed a recognised Preliminary Examination in Arts, and have not yet attended Lectures on Anatomy and Physiology of the first year, without any condition as to their becoming Students of the Hospital, except in the case of successful Candidates, who must enter at once as Perpetual Pupils. Chemistry and Physics are compulsory subjects for this Examination, and Candidates must take up one of the other subjects at their option. The Examination will be conducted by means of written papers and practical work. The names of Competitors with Certificate of Preliminary Examination must be sent to the Secretary not later than September 30th.

THE WILLIAM TITE SCHOLARSHIP.

This Scholarship, founded by the late Sir W. Tite, C.B., M.P., F.R.S., and endowed with £1,000 Consols, producing £30 per Annum, is awarded each year to the Student placed highest in the 1st Class List in the examinations at the end of the first Winter Session. Preference, in case of equality between Students, is to be given to the son of a medical man, and more particularly of one who has been educated at St. Thomas's Hospital or is in Practice in Bath.

THE MUSGROVE SCHOLARSHIP.

This Scholarship, founded by Sir John Musgrove, Bart, the late President of the Hospital, and endowed with £1,400 Consols, producing 40 Guineas per Annum, is awarded biennially to the Student who shall take the highest place in the 1st Class List in the examinations at the end of the Second Winter Session. It is tenable for two years, provided the holder obtains a place in the 1st Class in the Examinations at the end of the third winter.

THE PEACOCK SCHOLARSHIP.

This Scholarship, founded by the will of the late Dr. Thomas Bevill Peacock, for many years Physician, and at the time of his death Consulting Physician, to St Thomas's Hospital, is of the same value as the Musgrove Scholarship, is awarded and held upon the same terms; and is given every second year in alternation with that Scholarship.

Gentlemen obtaining these Scholarships are not precluded from receiving any of the Prizes awarded at the subsequent periodical examinations.

PRIZES.

The following Scholarships, Prizes, and Medals, will be offered for Competition during the year 1887–1888:—

TWO OPEN SCHOLARSHIPS IN NATURAL SCIENCE of the value of 125 Guineas and £60 respectively, at Entrance.

AT THE END OF FIRST YEAR.

Winter.

1st.	..	The William Tite Scholarship	£30.
2nd.	..	College Prize	£20.
3rd.	..	Ditto	£10.

Summer.

1st.	..	College Prize	£15.
2nd.	..	Ditto	£10.

SECOND YEAR.

Winter.

1st.	..	The Peacock Scholarship	£42.
2nd.	..	College Prize	£20.
3rd.	..	Ditto	£10.

Summer.

1st.	..	College Prize	£15.
2nd.	..	Ditto	£10.

THIRD YEAR.

Winter.

		Second Tenure of The Musgrove Scholarship (if holder obtains 1st Class in this examination)	£42.
1st.	..	College Prize	£20.
2nd.	..	Ditto	£15.
3rd.	..	Ditto	£10.

Summer.

1st.	..	College Prize	£15.
2nd.	..	Ditto	£10.

Students of each year are classed according to their respective merits in the examinations, and those in the *first* class in each year receive Certificates of Honour, and a preference in the selection for Hospital Appointments.

Free Scholarships are given to distinguished Pupils of Merchant Taylors' and City of London Schools, and Epsom College.

In addition there are awarded—

THE CHESELDEN MEDAL, *Annually.*

THE MEAD MEDAL, *do.*

THE SOLLY MEDAL AND PRIZE, *Biennially.*

THE GRAINGER TESTIMONIAL PRIZE, *Annually.*

THE TREASURER'S GOLD MEDAL, *do.*

The CHESELDEN MEDAL, founded by the late GEORGE VAUGHAN, Esq., is annually awarded to the Fourth Year's Student who most distinguishes himself in respect of a Special Practical Examination in Surgery and Surgical Anatomy.

The MEAD MEDAL, founded by Mr. and Mrs. NEWMAN SMITH, is awarded annually, to a Fourth Year's Student, in respect of a Special Practical Examination in Medicine, Pathology and Hygiene.

Competitors for either of these Medals must have been Students of St. Thomas's for at least two out of the four Winter Sessions.

The Solly Medal, together with a Prize in Money, will be awarded biennially. Those Students are eligible to compete who shall be of from three to six years' standing. The award is made for the best series of Reports of Surgical cases coming under the Student's personal observation in the Wards, not, however, to exceed ten in number. Preference is given, merit in other respects being equal, to Reports illustrated by the author's drawings, and short Clinical Remarks must accompany each Report. The next award will be made at the end of 1887–88, papers to be sent in before April 1st, 1888.

The Grainger Testimonial Prize, of the value of Fifteen Pounds, is awarded annually to the Student who shall have completed his third year of study at St. Thomas's Hospital, and not have exceeded his sixth year, for the best Anatomical or Physiological Essay devoted to the explanation of preparations and dissections illustrative of the subject. The successful Essay and the accompanying Preparations and Dissections will become the property of the Medical School. A small sum is provided annually to reimburse unsuccessful competitors for any expense which they may have incurred in the preparation of suitable illustrations. When such compensation is allowed, the Preparations and Dissections become the property of the Medical School. Subject to the approval of the School Committee, candidates may select their own topics; otherwise, the following two are given for selection :—1. A series of Preparations and Dissections illustrating the Anatomy of the Male and Female Bladder; Prostate; Uterus; Ovaries; Female Urethra; Prostatic, Membranous and Bulbous portions of the Male Urethra, accompanied by a description of the parts exposed in the specimens. 2. The Sub-Maxillary Gland, showing dissections of the gland *in situ* with its nerve connections, and by microscopical preparations the ultimate distribution of the nerves. Papers to be sent in before October 1st, 1888.

The Treasurer's Gold Medal for General Proficiency and Good Conduct, is awarded at the end of the 4th Winter Session to the Student who has passed through his pupilage in St. Thomas's Hospital in the most meritorious manner.

APPOINTMENTS.

Two Resident and Two Non-Resident House Physicians, Two House Surgeons, Two Assistant House Surgeons, and a Resident Accoucheur, are selected every three months from Gentlemen who have obtained their professional diplomas; they hold office for three or six months. Two House Physicians, and the Assistant House Surgeons, are non-resident, but the other Officers, together with the Dressers and Obstetric Clerks, are provided with Rooms and Commons during their period of attendance in the Hospital, free of expense.

Two Ophthalmic Clinical Assistants, chosen from Qualified Students who have worked satisfactorily in the Ophthalmic Department, are appointed for six months, the Senior receiving a Salary at the rate of £50 per annum, with board but not residence.

Clinical Assistants in the Special Departments for Diseases of the Skin, Throat, and Ear, are appointed every three months from Students who have served as Clinical Clerks or Dressers in those Departments.

Assistants to the Teachers of Practical and Manipulative Surgery are appointed for the Winter and Summer Sessions.

Clinical Clerks, and Dressers, to In-Patients are selected to the number of at least 100 each year. They are chosen from amongst the most eligible pupils. Clinical Clerks, and Dressers, for the Out-Patients are also appointed to the number of at least 80 to 100 each year.

All Students have the opportunity afforded them of being engaged in the performance of practical duties in connection with the Medical, Surgical, Obstetrical, Ophthalmic, and Pathological Departments of the Hospital.

Two Hospital Registrars, at an annual Salary of £100 each, are appointed in each year. Preference will be given to Gentlemen who have been distinguished for merit, and have completed their studies in the School. The payment of the Registrars is subject to the presentation of a Report upon the Practice of the Hospital, and to such Report being regarded as satisfactory by the Medical Officers to whom it shall have been referred.

Two or more Students are selected from those who have completed their Second Winter Session, to act as Assistants in the Physiological Laboratory. They receive Certificates of Honour according to merit.

Prosectors are appointed in the early part of the Winter Session, and Certificates of Honour are awarded to the best Dissectors.

Students are likewise appointed to act as Assistants to the Demonstrators of Pathological Anatomy in the Post-mortem Room.

Obstetric Clerks, who reside and have Commons in the Hospital, are appointed in rotation. Each holds office for a fortnight, and Certificates of Honour are awarded to those Gentlemen who have satisfactorily attended Sixty Maternity cases.

Students have access, with the permission of the Officers under whose superintendence they are placed, to the Museums of Human and Comparative Anatomy and Pathology—of Materia Medica—of Botany—and of Chemistry and Mineralogy—and to the Laboratories of Practical Physiology and Practical Chemistry; also, by special permission, to Dr. Stone's collection of Physical apparatus; and to the Library, which contains a large collection of works of reference and modern text-books.

REGULATIONS for the EXAMINATION AND CLASSIFICATION OF THE STUDENTS.

1. In accordance with the Regulations of the Qualifying Bodies, Students will be required to attend the Class Examinations in the subjects for which they have to be certified, and show by their answers to the questions that they have paid proper attention to the Lectures, otherwise their Schedules cannot be signed.

2. There shall be held at least two Examinations in each Winter and one in each Summer Session in each subject on which attendance is required during that Session, and the marks obtained in these Examinations shall be the basis for the Classification of Students and the Award of Prizes for each Session respectively. Provided that any extra Examination in the course of the Session, in any subject, be not allowed to interfere with the ordinary Lectures in other subjects.

3. The number of marks allotted to each subject in the following Schedule is not to be exceeded in case the number of Examinations held during the Session be more than two, but must be distributed amongst the several Examinations.

	1st YEAR'S SUBJECTS.	
Winter	Anatomy	600
	Practical Anatomy	200
	Physiology	600
	Chemistry	600
	Total	2000
Summer	Practical Chemistry	300
	Materia Medica	300
	Botany	150
	Practical Physiology	300
	Total	1050

	2nd YEAR'S SUBJECTS.	
Winter	Anatomy	600
	Practical Anatomy	200
	Physiology	600
	Total	1400
Summer	Midwifery	500
	Comparative Anatomy	100
	Practical Surgery	100
	Total	700

	3rd YEAR'S SUBJECTS.	
Winter	Medicine	650
	Surgery	650
	Practical Surgery	200
	Total	1500
Summer	Forensic Medicine	250
	Pathological Anatomy	350
	Total	600

4. All Students who have obtained at least one-third of the total number of marks in each subject, and not less than two-thirds of the total number allotted to all the subjects collectively, shall be placed in the 1st Class.

Those who have obtained one-third of the total number of marks allotted to all the subjects collectively shall be placed in the 2nd Class.

The names of those who do not obtain either a 1st or 2nd Class position will not be published, but a General List showing the exact position of each Student at every Examination shall be kept by the Secretary, from whom any Student can learn his own position, but no Lecturer shall make known to Students the number of marks obtained by any Student in any subject.

5. The Prizes shall be awarded to the Students holding the 1st, 2nd, and 3rd positions in the 1st Class of each Winter Session, and to those holding the 1st and 2nd positions of the 1st Class in each Summer Session.

6. The number of marks allotted to the Examinations for the MEAD and CHESELDEN Medals shall be 600 each.

7. In awarding the TREASURER'S Medal the number of marks obtained at the Sessional Examinations and in the MEAD and CHESELDEN Examinations shall be counted, provided that, as regards the Examination for the Medals, two-thirds of the maximum marks be obtained, but those obtained in the Entrance Scholarship Competition shall not be included.

8. The Authorities reserve the right of withholding any Prize, if no competitor of sufficient merit presents himself.

Distribution of Prizes for the Past Sessions.

SUMMER SESSION, 1886.

FIRST YEAR'S STUDENTS.

S. G. TOLLER, *Notting Hill*	College Prize, £15, and Certificate of Honour.
A. F. STABB, *Ilfracombe*	College Prize, £10, and Certificate of Honour.
C. R. BOX, *Camberwell*...	Certificate of Honour.
A. C. LANKESTER, *Leicester*	Certificate of Honour.
T. A. DUKES, *Croydon*	Certificate of Honour.
E. T. WHITEHEAD, *Battersea*	Certificate of Honour.
E. JOBBINS, *Lee*	Certificate of Honour.
H. S. COOPER, *Brightlingsea*...	Certificate of Honour.
E. E. WARE, *Exeter*	Certificate of Honour.

SECOND YEAR'S STUDENTS.

T. P. COWEN, *Upper Holloway*	College Prize, £15, and Certificate of Honour.
H. G. TURNEY, *Camberwell Grove*	College Prize, £10, and Certificate of Honour.
F. E. FORWARD, *Chard*	Certificate of Honour.

THIRD YEAR'S STUDENTS.

C. H. ECCLES, *Brigg*	College Prize, £15, and Certificate of Honour.
H. B. LUARD, *Aveley, Essex*	College Prize, £10, and Certificate of Honour.
E. HOBHOUSE, *Batcombe*	Certificate of Honour.
F. FAWSSETT, *Hampton Wick*	Certificate of Honour.
T. A. DURRANT, *Kingston Hill*	Certificate of Honour.
R. J. LANGLEY, *Tilehurst, Reading*	Certificate of Honour.

WINTER SESSION, 1886-87.

ENTRANCE SCIENCE SCHOLARSHIPS.

C. P. Lovell, *Hyde Park* ... ... — **Scholarship, £100,** and Certificate of Honour.

M. C. Clutterbuck, *Bath* ... ... — **Scholarship, £60,** and Certificate of Honour.

FIRST YEAR'S STUDENTS.

H. Burden, *Belfast* ... ... — **The Wm. Tite Scholarship, £30,** and Certificate of Honour.

A. King, *Norwich* ... ... — **College Prize, £20,** and Certificate of Honour.

E. T. Whitehead, *Battersea* ... ... — **College Prize, £10,** and Certificate of Honour.

W. F. Umney, *Sydenham* ... . — Certificate of Honour.

T. H. Kellock, *Totnes* ... ... — Certificate of Honour.

J. E. F. André, *West Kensington Park* ... ... — Certificate of Honour.

H. S. Cooper, *Brightlingsea* ... ... — Certificate of Honour.

L. G. Scudamore, *Lewisham* ... ... — Certificate of Honour.

W. S. Griffith, *Kensington* ... ... — Certificate of Honour.

W. R. Thurnam, *Carlisle* ... ... — Certificate of Honour.

D. F. Shearer, *Bradford, Yorks* ... ... — Certificate of Honour

J. R. Harper, *Barnstaple* ... ... — Certificate of Honour.

SECOND YEAR'S STUDENTS.

A. F. Stabb, *Ilfracombe* ... ... — **The Musgrove Scholarship, 40 Gs.,** and Certificate of Honour.

Æq. A. C. Lankester, *Leicester* ... ... — **College Prize, £20,** and Certificate of Honour.

Æq. S. G. Toller, *Notting Hill* ... ... — **College Prize, £10,** and Certificate of Honour.

T. A. Dukes, *Croydon* ... ... — Certificate of Honour.

C. R. Box, *Camberwell* ... ... — Certificate of Honour.

A. J. Swallow, *Clapham* ... ... — Certificate of Honour.

A. Wentworth Jones, *Godington, Oxon* ... ... — Certificate of Honour.

THIRD YEAR'S STUDENTS.

F. C. Abbott, *Gorleston* ... ... — **2nd Tenure of the Peacock Scholarship, with College Prize, £20,** and Certificate of Honour.

T. P. Cowen, *Upper Holloway* ... ... — **College Prize, £15,** and Certificate of Honour.

H. G. Turney, *Camberwell Grove* ... ... — **College Prize, £10,** and Certificate of Honour.

W. H. L. Copeland, *South Kensington* ... ... — Certificate of Honour.

E. A. Roberts, *Birmingham* ... ... — Certificate of Honour.

PROSECTORS.

T. A. Dukes, *Croydon* ... ... — Certificate of Honour.

A. C. Lankester, *Leicester* ... ... — Certificate of Honour.

A. F. Stabb, *Ilfracombe* ... ... — Certificate of Honour.

A. J. Swallow, *Clapham* ... ... — Certificate of Honour.

S. G. Toller, *Notting Hill* ... ... — Certificate of Honour.

E. E. Ware, *Exeter* ... ... — Certificate of Honour.

ASSISTANTS IN PHYSIOLOGICAL LABORATORY.

F. C. Abbott, *Gorleston* ... ... — Certificate of Honour.
W. H. L. Copeland, *South Kensington* ... ... — Certificate of Honour.
H. Gervis, *Harley Street* ... ... — Certificate of Honour.
C. J. Martin, *Dalston* ... ... — Certificate of Honour.
H. G. Turney, *Camberwell Grove* ... ... — Certificate of Honour.

GRAINGER TESTIMONIAL PRIZE.

F. G. Parsons ... ... — **Prize, £20.**

PRACTICAL MEDICINE.

W. W. Ord ... ... — **The Mead Medal,** founded by Mr. and Mrs. Newman Smith.

E. Hobhouse ... . — Special Mention and Certificates of Honour.
H. B. Luard ... ...
F. M. House ... ...

SURGERY AND SURGICAL ANATOMY.

F. Fawssett ... ... — **The Cheselden Medal,** founded by the late George Vaughan, Esq.

R. V. Solly ... ... — Special Mention and Certificates of Honour.
H. H. Heffernan ... ...
R. J. Langley ... ...

RESIDENT ACCOUCHEURS.

J. S. Hutton ... ... — Certificate of Honour.
C. Yeoman ... ... — Certificate of Honour.
A. E. Godfrey ... ... — Certificate of Honour.
H. J. Macevoy ... ... — Certificate of Honour.

HOUSE PHYSICIANS.

F. D. Crowdy ... ... — Certificate of Honour.
A. A. Brockatt ... ... — Certificate of Honour.
C. S. Evans ... ... — Certificate of Honour.
S. W. Wheaton ... ... — Certificate of Honour.
A. E. Godfrey — Non-Resident ... ... — Certificate of Honour.
A. J. H. Montague — Non-Resident ... ... — Certificate of Honour.

ASSISTANT HOUSE PHYSICIANS.

C. S. Evans ... ... — Certificate of Honour.
H. Cameron Kidd ... ... — Certificate of Honour.
W. H. C. Staveley ... ... — Certificate of Honour.
H. P. Hawkins ... ... — Certificate of Honour.

HOUSE SURGEONS.

E. S. Gooddy ... ... — Certificate of Honour.
F. E. Nichol ... ... — Certificate of Honour.
E. D. Ritchie ... ... — Certificate of Honour.
J. S. Hutton ... ... — Certificate of Honour.
W. H. C. Staveley ... ... — Certificate of Honour.

ASSISTANT HOUSE SURGEONS.

F. E. Nichol ... ... — Certificate of Honour.
C. S. Evans ... ... — Certificate of Honour.
W. H. C. Staveley ... ... — Certificate of Honour.
S. H. Jones ... ... — Certificate of Honour.
K. Totsuka ... ... — Certificate of Honour.
J. H. Tonking ... ... — Certificate of Honour.
E. C. Stabb ... ... — Certificate of Honour.

FOR GENERAL PROFICIENCY AND GOOD CONDUCT.

F. Fawssett ... ... — **The Treasurer's Gold Medal.**

THE FOLLOWING DISTINCTIONS HAVE BEEN OBTAINED BY STUDENTS OF ST. THOMAS'S HOSPITAL DURING THE PAST YEAR:—

A University Scholarship in Physiology at the B.Sc. Degree, of the University of London, by Mr. C. J. MARTIN.

The Gold Medal awarded by the Society of Apothecaries for proficiency in the knowledge of Materia Medica and of Pharmaceutical Chemistry, by Mr. S. G. TOLLER, and the Silver Medal, by Mr. T. P. COWEN.

THE MUSEUM OF HUMAN AND COMPARATIVE ANATOMY AND PATHOLOGY.

Curator.—S. G. Shattock, Esq., F.R.C.S.

Among the earliest contributors to this Museum were Mr. Cline, Sir A. Cooper, Mr. Travers, and Mr. Tyrrell.

The Printed Catalogue of the Museum consists of three octavo volumes: in the first volume, edited by Mr. John F. South, are described the preparations of Healthy Human, Microscopical, and Comparative Anatomy; and the 2nd and 3rd volumes, edited by Mr. Sydney Jones, contain descriptions of the specimens illustrative of Pathological Anatomy.

The COLLECTION of HUMAN ANATOMY consists of a Physiological and a Pathological Department: the former contains, besides wax models and casts, a large number of dissected Preparations, illustrating the Organs of Locomotion and Sense; the Nervous System; the Digestive, Respiratory, and Urinary Apparatus; the Vascular System, the Organs of Reproduction, and the tissues.

The Pathological Division is very rich, containing above 3000 Specimens, arranged in thirty-seven Sections, as follows:—

SECT.
A. Injuries of Bone: Fractures.
B. Injuries of Joints: Dislocations.
C. Diseases of Bone.
D. Diseases of Joints.
E. Diseases of the Spinal Column.
F. Injuries and Diseases of the Muscular System.
G. Injuries and Diseases of the Eye.
H. Injuries and Diseases of the Ear.
I. Injuries and Diseases of the Nose, Antrum, &c.
K. Injuries and Diseases of the Skin and Subcutaneous Cellular Tissue.
L. Injuries of the Skull.
M. Injuries of the Spine.
N. Injuries and Diseases of the Nervous System.
O. Injuries and Diseases of Mouth, Fauces, Pharynx, and the Œsophagus.
P. Injuries and Diseases of the Stomach.
Q. Injuries and Diseases of the Intestines and Peritoneum.
R. Intussusception, Internal Strangulation, and Hernia.
S. Injuries and Diseases of the Liver.
T. Diseases of the Pancreas and Salivary Glands.
U. Injuries and Diseases of the Spleen.
V. Diseases of Thyroid, Thymus, and Suprarenal Capsules.

SECT.
W. Injuries and Diseases of the Respiratory Apparatus.
X. Injuries and Diseases of the Heart and Pericardium.
Y. Injuries and Diseases of Arteries and Veins.
Z. Diseases of Lymphatic and Lacteal Vessels and Glands.
AA. Injuries and Diseases of the Kidneys, and Ureters.
BB. Injuries and Diseases of the Bladder.
CC. Diseases of the Prostate Gland and Vesiculæ Seminales, Urinary and Prostatic Calculi.
DD. Injuries and Diseases of the Penis and Urethra.
EE. Injuries and Diseases of the Testicles and Scrotum.
FF. Diseases of the Ovaries and Fallopian Tubes.
GG. Injuries and Diseases of the Uterus, Vagina, and external organs.
HH. Diseases and displacements of the Ovum.
II. Diseases of the Breast.
KK. Tumours and other allied Morbid Growths.
LL. Malformations.
MM. Wax Models and Casts.

Bones, Joints, &c.—Amongst the specimens illustrating Injuries of Bones and Joints, are nearly all those described and figured in Sir A. Cooper's Treatise on 'Dislocations and Fractures of the Joints,' and in Cooper's and Travers's 'Surgical Essays.'

This section has been much enriched by Sir William MacCormac, who presented numerous specimens of gunshot injuries, chiefly fractures, obtained from cases under his care during the Franco-German War.

Sir A. Cooper's preparations, illustrating repair after fracture, are contained in this Section.

Eye.—This Section has been arranged by Mr. Dixon, and contains specimens described and figured by Sir A. Cooper, Mr. Travers, and Mr. Saunders.

Skin.—Several Tumours are contained in this Section, as well as, amongst others, that horny growth, ten inches in length, removed from a man's forehead by Sir A. Cooper.

Head, Spine, Nervous System.—Showing all kinds of Injuries to the Skull; Spinal Injuries, which have been subjected to operation by Cline, Tyrrell, and South, as well as every variety, frequent and rare, of disease of the Nervous System.

Intestines and Peritoneum.—Travers's Preparations, illustrating 'The Process of Nature in repairing Injuries of the Intestines,' are contained in this Section. There are also Specimens illustrating the Morbid Anatomy of Fever, &c.

Hernia.—This Section contains nearly all the Preparations figured and described in 'Cooper's Hernia.' Besides the more common varieties of Hernia, there are Specimens of Mesenteric, Mesocolic, Vesical, Thyroideal, Ischiatic, Perineal, and Phrenic Hernia.

Liver.—Besides every variety of Hepatic Disease, this Section contains a large number of Biliary Calculi, many of which have been presented by Dr. Ord. Several specimens of Actinomycosis are also contained in it.

Respiratory and Vascular Systems.—Amongst these Preparations are two Specimens, showing ligature of the Abdominal Aorta; one of them the case of Sir A. Cooper; the other that of Mr. John F. South. There are also Specimens of spontaneous obliteration of the Aorta.

The Preparations illustrative of Travers's experiments on Arteries and Veins are in the collection.

There are also very interesting Specimens of Diseased Heart, described by Dr. Wells and Dr. Elliotson.

Kidneys.—Described and arranged by Mr. Simon.

Urinary Calculi.—250 in number—analysed by Mr. Heisch and Dr. Bernays.

Testes.—Most of the preparations figured in Sir A. Cooper's work 'On the Testis,' are contained in this Section.

Malformations.—This Section contains Specimens of Spina Bifida, Acephalous and double monsters, Ectopia Cordis, Malformations of the Heart, Urinary, and Generative Organs. Most of them have been elaborately described by Mr. R. D. Grainger, and the malformations of the heart are referred to by Dr. Farre and Dr. Peacock in their works. There are also very interesting specimens of malformation described by Dr. Bristowe, Mr. Le Gros Clark, and Mr. Sydney Jones.

The Museum contains a considerable number of valuable Ethnological Specimens.

The Museum of Comparative Anatomy contains about 1,000 Preparations, some of them very rare and valuable.

A large number of these Specimens were made by Sir A. Cooper, to illustrate his Lectures, when Professor of Comparative Anatomy to the Royal College of Surgeons.

The Cabinets of Microscopical Anatomy, which are under the charge of the Demonstrator of Practical Physiology, contain upwards of 2,000 injected and other Specimens of normal and morbid Histology, parasites, urinary deposits, &c. These include the Preparations made by Mr. Rainey, to illustrate the Histological Course of Lectures; and others described by him in Papers published in the Philosophical, Medico-Chirurgical, and Microscopical Transactions, and in various scientific works. This collection has been considerably enlarged by the addition of a series of specimens presented by Dr. Acland, which includes the chief forms of micro-organisms found in diseased tissues, as well as specimens illustrating the development of the Chick. The specimens are available for use by students who wish to examine them, subject to such regulations as may be deemed necessary.

The Materia Medica Museum contains a complete collection of all the chemicals and organic substances included in the British Pharmacopœia of 1885; all these are named and numbered.

A second collection of all the chief medicinal substances is placed in drawers, so as to be available for the use of students.

A large and very fine collection of dried medicinal plants, named according to the latest nomenclature, is displayed on the walls of the Museum.

The Museum is under the conjoint superintendence of Dr. Stone and Mr. Shattock.

The Collection of Chemistry and Mineralogy is under the Superintendence of Dr. Bernays, who presented the larger part of the Specimens contained in it. It is displayed with the Collection of Materia Medica.

St. Thomas's Hospital.

MEDICAL AND PHYSICAL SOCIETY.

President, 1887–88.

W. Anderson, Esq.

Vice-Presidents.

The Physicians.
The Surgeons.
The Assist.-Physicians.
The Assist.-Surgeons.
C. A. Ballance, Esq.
Dr. Bernays.
Dr. A. Carpenter.
Dr. Cranstoun Charles.
W. Edmunds, Esq.
Dr. Kilner.
S. Plowman, Esq.
Dr. Rayner.
R. W. Reid, Esq.
S. G. Shattock, Esq.
Dr. Seymour Taylor.
C. E. Truman, Esq.

Hon. Secretaries.

C. H. James. F. C. Abbott.

Committee.

W. H. C. Staveley.
E. Solly.
F. Fawssett.
E. Hobhouse.
H. G. Turney.
S. G. Toller.
E. E. Ware.
J. W. Mactavish.
H. Burden.
J. E. F. André.

This Society was originated in the early part of the present century by students of the Hospital, and has for its object the reading and discussion of papers on Medicine, Surgery, and subjects of General Interest, the narration of cases, and the exhibition of specimens of Physiological and Pathological interest. The Meetings are held in the Library on alternate Thursdays at 8.30 p.m., and terminate not later than 10 p.m.

The annual soirée, to which past and present students are invited, is usually held in May or June, in the Grand Entrance Hall and Corridor of the Hospital.

Further information can be obtained of the Hon. Secretaries.

ST. THOMAS'S HOSPITAL REPORTS.

VOL. XVI., NEW SERIES,

EDITED BY

GEORGE GULLIVER, M.A., M.B. Oxon., AND
H. H. CLUTTON, M.A. Cantab., F.R.C.S.,

Will be Published immediately.

It will contain contributions from Members of the Staff and others, together with the Statistical Reports of the Hospital, by the Medical and Surgical Registrars, to December 31st, 1886.

The New Series commenced in 1870, and complete Sets may still be had.

Intending Subscribers are requested to communicate with Mr. G. Rendle, the Secretary of the Medical School, at the Hospital, to whom P.O. Orders on the Westminster Bridge Office are to be made payable.

PRICE OF THE VOLUME (including Postage or delivery):—

To Subscribers in Great Britain and Countries within the Postal Union .. .. 6*s.* 0*d.*

To Non-Subscribers do. do. .. .. 7*s.* 6*d.*

OCTOBER, 1887.

1	S	Introductory Address, 3 P.M. Annual Dinner.
2	S	Seventeenth Sunday after Trinity.
3	M	Entrance Scholarships Exam., 3rd, 4th, & 5th.
4	Tu	Clinical Clerks and Dressers commence duty.
5	W	
6	Th	
7	F	
8	S	
9	S	Eighteenth Sunday after Trinity.
10	M	
11	Tu	
12	W	Last day for Notice for Public Health Exam., Univ.
13	Th	[Lond.
14	F	
15	S	Last day for Certs. for M.B. Exam., Univ. Lond.
16	S	Nineteenth Sunday after Trinity.
17	M	
18	Tu	St. Luke.
19	W	
20	Th	
21	F	
22	S	
23	S	Twentieth Sunday after Trinity.
24	M	
25	Tu	
26	W	
27	Th	
28	F	St. Simon and St. Jude.
29	S	
30	S	Twenty-first Sunday after Trinity.
31	M	Univ. Lond. M.B. Exam.

The Hospital Entrance Science Scholarships Examination takes place during this month.

The Registration and Museum Committees meet during this month.

The Examinations of the Society of Apothecaries are held every Wednesday and Thursday.

First, Second, and Third Examinations of the Examining Board in England are held this month.

NOVEMBER, 1887.

1	Tu	All Saints.
2	W	Last day for applications for House offices, &c.*
3	Th	
4	F	
5	S	
6	S	Twenty-second Sunday after Trinity.
7	M	[Surgical Registrarships.
8	Tu	*Notice*—30th, last day for applications for Medical and
9	W	Meeting to appoint House Officers, &c. Prince of
10	Th	[Wales b., 1841.
11	F	
12	S	
13	S	Twenty-third Sunday after Trinity.
14	M	
15	Tu	
16	W	
17	Th	
18	F	[Lond.
19	S	Last day for Certs. for M.D. and M.S. Exams., Univ.
20	S	Twenty-fourth Sunday after Trinity.
21	M	Last day for Certs. for B.S. Exam., Univ. Lond.
22	Tu	Univ. Lond. M.B. Pass list published.
23	W	Univ. Lond. M.B. Honours Exam.
24	Th	
25	F	
26	S	
27	S	Advent Sunday.
28	M	
29	Tu	[and Surgical Registrarships.
30	W	Saint Andrew. Last day for applications for Medical

* *Applications for these appointments to be made to the Medical Secretary, by letter, stating the Candidate's qualifications, the offices which he has previously held in the Hospital, and the number of Maternity Cases attended.*

DECEMBER, 1887.

1	Th	
2	F	
3	S	
4	ℒ	Second Sunday in Advent.
5	M	Univ. Lond. M.D. and M.S. Exam. [B.S. Exam.
6	Tu	House Officers, &c., commence duty. Univ. Lond
7	W	Last day for applications for Clinical Clerkships and
8	Th	[Dresserships.
9	F	Last day for Certs. for Matric. Univ. Lond.
10	S	
11	ℒ	Third Sunday in Advent.
12	M	Univ. London Public Health Exam.
13	Tu	
14	W	Meeting to appoint Clinical Clerks and Dressers.
15	Th	
16	F	Univ. Lond. M.D. List published. Last day for Notice
17	S	[for Prel. Sci. (M.B.) Exam. Univ. Lond.
18	ℒ	Fourth Sunday in Advent.
19	M	1st Sessional Examination commences.
20	Tu	
21	W	Saint Thomas.
22	Th	
23	F	
24	S	
25	ℒ	Christmas Day.
26	M	Saint Stephen.
27	Tu	Saint John.
28	W	Holy Innocents.
29	Th	
30	F	
31	S	Last Day of Certs. for Int. Med. Exam. Univ. Lond.

University of Cambridge First, Second, and Third M.B. Examinations are held this month.

Preliminary Examination in Arts of the Society of Apothecaries held this month.

JANUARY, 1888.

1	S	First Sunday after Christmas. Circumcision.
2	M	
3	Tu	Clinical Clerks and Dressers commence duty.
4	W	
5	Th	
6	F	Epiphany.
7	S	
8	S	First Sunday after Epiphany.
9	M	Univ. Lond. Matriculation Examination.
10	Tu	
11	W	
12	Th	
13	F	
14	S	
15	S	Second Sunday after Epiphany.
16	M	Univ. Lond. Prelim. Scientific (M.B.) Exam. and
17	Tu	Intermd. Exam. in Medicine.
18	W	
19	Th	
20	F	
21	S	
22	S	Third Sunday after Epiphany.
23	M	
24	Tu	
25	W	Conversion of St. Paul.
26	Th	
27	F	
28	S	
29	S	Septuagesima Sunday.
30	M	Univ. Lond. Matriculation Pass List published.
31	Tu	

First, Second, and Third Examinations of the Examining Board in England are held this month.

The Registration and Museum Committees meet during this month.

FEBRUARY, 1888.

1	W	Last day for applications for House Offices, &c.*
2	Th	
3	F	
4	S	
5	S	Sexagesima Sunday.
6	M	Univ. Lond. Classified Matric. List published.
7	Tu	[Prel. Sci. (M.B.) List published.
8	W	Meeting to appoint House Officers, &c. Univ. Lond.
9	Th	
10	F	Queen Victoria married, 1840.
11	S	
12	S	Quinquagesima Sunday.
13	M	
14	Tu	Univ. Lond. Int. Med. Pass List published.
15	W	Ash Wednesday.
16	Th	
17	F	
18	S	
19	S	First Sunday in Lent.
20	M	
21	Tu	
22	W	
23	Th	
24	F	St. Matthias.
25	S	
26	S	Second Sunday in Lent.
27	M	
28	Tu	
29	W	

* *Applications for these appointments to be made to the Medical Secretary, by letter, stating the Candidate's qualifications, the offices which he has previously held in the Hospital, and the number of Maternity Cases attended.*

MARCH, 1888.

1	Th	
2	F	
3	S	
4	S	Third Sunday in Lent.
5	M	
6	Tu	House Officers, &c., commence duty.
7	W	Last day for applications for Clinical Clerkships and
8	Th	[Dresserships.
9	F	
10	S	Prince of Wales married, 1863.
11	S	Fourth Sunday in Lent.
12	M	
13	Tu	
14	W	Meeting to appoint Clinical Clerks and Dressers.
15	Th	
16	F	
17	S	
18	S	Fifth Sunday in Lent.
19	M	Sessional Examination commences.
20	Tu	
21	W	
22	Th	
23	F	
24	S	
25	S	Palm Sunday. Annunciation. Lady Day.
26	M	
27	Tu	
28	W	
29	Th	
30	F	Good Friday.
31	S	Registrar's Report for last year due. Last day for
		[Reports for Solly Medal.

Preliminary Examination in Arts of the Society of Apothecaries held this month.

APRIL, 1888.

1	S	Easter Sunday.
2	M	Bank Holiday.
3	Tu	Clinical Clerks and Dressers commence duty.
4	W	
5	Th	
6	F	
7	S	
8	S	Low Sunday.
9	M	
10	Tu	
11	W	
12	Th	
13	F	
14	S	
15	S	Second Sunday after Easter.
16	M	
17	Tu	
18	W	
19	Th	
20	F	
21	S	
22	S	Third Sunday after Easter.
23	M	
24	Tu	
25	W	St. Mark.
26	Th	
27	F	
28	S	
29	S	Fourth Sunday after Easter.
30	M	

First, Second, and Third Examinations of the Examining Board in England are held this month.

The Examinations for the Mead and Cheselden Medals take place this month.

The Annual Inspection of the Museum and meeting of Museum Committee take place during this month.

The Registration Committee meets during this month.

MAY, 1888.

1	Tu	Summer Session commences. St. Philip and St. James.
2	W	Last day for applications for House Offices, &c.*
3	Th	
4	F	
5	S	
6	S	Fifth Sunday after Easter. Rogation Sunday.
7	M	
8	Tu	
9	W	Meeting to appoint House Officers, &c.
10	Th	Ascension Day.
11	F	
12	S	First Stone of St. Thomas's New Hospital laid by [H.M. the Queen, 1868.
13	S	Sunday after Ascension Day.
14	M	
15	Tu	
16	W	
17	Th	
18	F	Last day for Certs. for Matric. Univ. Lond.
19	S	
20	S	Whit Sunday.
21	M	Bank Holiday. No Lectures.
22	Tu	
23	W	
24	Th	Queen Victoria born, 1819.
25	F	
26	S	
27	S	Trinity Sunday.
28	M	
29	Tu	
30	W	
31	Th	

Univ. Camb. Third M.B. Exam. held this month.

* *Applications for these appointments to be made to the Medical Secretary, by letter, stating the Candidate's qualifications, the offices which he has previously held in the Hospital, and the number of Maternity Cases attended.*

JUNE, 1888.

1	F	
2	S	
3	S	First Sunday after Trinity.
4	M	
5	Tu	House Officers, &c., commence duty.
6	W	Last day for applications for Clinical Clerkships and
7	Th	[Dresserships.
8	F	
9	S	
10	S	Second Sunday after Trinity.
11	M	St. Barnabas.
12	Tu	
13	W	Meeting to appoint Clinical Clerks and Dressers.
14	Th	
15	F	
16	S	Last day for notice for Prel. Sci. (M.B.) Exam. Univ.
		[Lond.
17	S	Third Sunday after Trinity.
18	M	Univ. Lond. Matric. Exam.
19	Tu	
20	W	Queen's Accession.
21	Th	New St. Thomas's Hospital opened by H. M. the
22	F	[Queen, 1871.
23	S	Last day for Certs. for Int. Med. Exam. Univ. Lond.
24	S	Fourth Sunday after Trinity St. John Baptist.
25	M	[Midsummer Day.
26	Tu	
27	W	
28	Th	Queen Victoria crowned, 1838
29	F	St. Peter.
30	S	

The Harveian Oration is delivered at the Royal College of Physicians annually in the month of June.

Doctor of Science Examination at London University takes place within the first 21 days of June.

Distribution of Prizes for past Sessions during this month.

Univ. Camb. First and Second M.B. Examinations are held within the first 14 days of June.

Prcliminary Examination in Arts of the Society of Apothecaries held this month.

JULY, 1888.

1	S	Fifth Sunday after Trinity.
2	M	
3	Tu	Clinical Clerks and Dressers commence duty.
4	W	Last day for applications for House Offices, &c., for
5	Th	[September.*
6	F	
7	S	
8	S	Sixth Sunday after Trinity.
9	M	Univ. Lond. Pass Matric. List published. Univ. Lond.
10	Tu	[Int. Med. Ex.
11	W	Meeting to appoint House Officers, &c., for September.
12	Th	
13	F	
14	S	
15	S	Seventh Sunday after Trinity.
16	M	Univ. Lond. Prelim. Scientific (M.B.) Exam. Classi-
17	Tu	[fied Matric. List published.
18	W	
19	Th	
20	F	
21	S	
22	S	Eighth Sunday after Trinity.
23	M	
24	Tu	
25	W	St. James. Sessional Examination commences.
26	Th	
27	F	
28	S	
29	S	Ninth Sunday after Trinity.
30	M	
31	Tu	

First, Second, and Third Examinations of the Examining Board in England are held this month.

The Registration and Museum Committees meet during this month.

** Applications for these appointments to be made to the Medical Secretary, by letter, stating the Candidate's qualifications, the offices which he has previously held in the Hospital, and the number of Maternity Cases attended.*

AUGUST, 1888.

1	W	
2	Th	
3	F	
4	S	
5	S	Tenth Sunday after Trinity.
6	M	Bank Holiday.
7	Tu	Univ. Lond. Int. Med. Pass List published.
8	W	Univ. Lond. Prelim. Sci. Pass List published.
9	Th	
10	F	
11	S	
12	S	Eleventh Sunday after Trinity.
13	M	
14	Tu	
15	W	
16	Th	
17	F	
18	S	
19	S	Twelfth Sunday after Trinity.
20	M	
21	Tu	
22	W	
23	Th	
24	F	St. Bartholomew.
25	S	
26	S	Thirteenth Sunday after Trinity.
27	M	
28	Tu	
29	W	
30	Th	
31	F	

SEPTEMBER, 1888.

1	S	
2	S	Fourteenth Sunday after Trinity.
3	M	
4	Tu	House Officers, &c., commence duty. [Dresserships.
5	W	Last day for applications for Clinical Clerkships and
6	Th	
7	F	
8	S	
9	S	Fifteenth Sunday after Trinity.
10	M	
11	Tu	
12	W	
13	Th	
14	F	
15	S	
16	S	Sixteenth Sunday after Trinity.
17	M	
18	Tu	
19	W	Meeting to appoint Clinical Clerks and Dressers.
20	Th	
21	F	St. Matthew.
22	S	
23	S	Seventeenth Sunday after Trinity.
24	M	
25	Tu	
26	W	
27	Th	
28	F	[Prize.
29	S	Michaelmas Day. Last day for Essay for Grainger
30	S	Eighteenth Sunday after Trinity.

Preliminary Examination in Arts of the Society of Apothecaries held this month.

LIST OF STUDENTS

WHO HAVE OBTAINED

Honours in the Annual Examinations.

w *refers to Winter and* s *to Summer Session.*

The Addresses are those given at the time of Entry.

ABBOTT (F. C.), Gorleston.
w 1884–5, 1st Year Student, 1st Entrance Science Scholarship. The Wm. Tite Scholarship.
s 1885. 1st Year Student, 1st Coll. Prize.
w 1885–6. 2nd Year Student, The Peacock Scholarship.
w 1886–7. 3rd Year Student, 2nd tenure of Peacock Scholarship with 1st College Prize.

ACLAND (T. D.),* Oxford.
w 1877–8. 3rd Year Physical Society's Prize. Paper published in Hospital Reports, Vol. VIII.
w 1878–9. 4th Year Student. The Mead Medal.

ADDY (B.), West Deeping, Lincolnshire.
1869. 1st Year Student, 1st College Prize; Physical Society's 1st Year's Prize.
1870. 2nd Year Student, 1st Coll. Prize; Physical Society's 2nd Year's Prize.
1871. 3rd Year Student, 1st Coll. Prize; Prosector's Prize; Treasurer's Gold Medal.

ALLINGHAM (W.),† Bermondsey.
1852. Descriptive Anatomy, Hon. Cert.; Chemistry, Hon. Cert.
1853. Midwifery, Hon. Cert.
1854. Medicine, Hon. Cert.; Descriptive Anatomy, Prize; Midwifery, Hon. Cert.; Physical Society's Essay, Prize; Surgery, Prize; Physiology, Hon. Cert.
1855. Medicine, Prize; Descriptive Anatomy, Hon. Cert.; Physiology, Hon. Cert.; Clinical Medicine, President's Prize; Clinical Medicine, Treasurer's Prize.

ANDERSON (W.),‡ Clapham, Surrey.
1865. 1st Year Student, 3rd Coll. Prize.
1866. 2nd Year Student, 3rd Coll. Prize.
1867. 3rd Year Student, 1st Coll. Prize; Physical Society's 3rd Year's Prize; Cheselden Medal.

ARMSTRONG (H. G.), Reading.
s 1872. 1st Year Student, Hon. Cert.
w1874. 3rd Year Student, 3rd Coll. Prize.

ATKINSON (F. P.), Kew.
1861. 1st Year Matriculation Examination—Classics and Mathematics, Hon. Cert.

ATKINSON (J.), Kirkby-Lonsdale.
1853. Chemistry, Hon. Cert.

AVELING (C. T.), Shacklewell.
1863. Matriculation Examination—Physics and Natural History, 1st College Prize; 1st Year Student, 1st College Prize.
1864. 2nd Year Student, 2nd College Prize.
1865. 3rd Year Student, 3rd College Prize.

BAILEY (J. H. T.), Greenwich.
1843. Materia Medica, Hon. Cert.

BAIN (J.)
1855. Midwifery, Hon. Cert.

BALLANCE (C. A.),§ Lower Clapton.
w 1875-6. 1st Year Student, Hon. Cert.
w 1876-7. 3rd Year Student, 3rd College Prize, and Physical Society's 3rd Year's Prize;
1880. The Solly Medal and Prize.

BARKER (F. R.), Aldershot.
w 1875. Prosector's Prize.

BARRON (H. J.), Guilford Street, Russell Square.
w 1877-8. 2nd Year Student, Prosector's Prize

BARWELL (R.),‖ Norwich.
1847. Medicine, Hon. Cert.; Midwifery, Hon. Cert.
1848. Physical Society's Essay, Treasurer's Prize; Physiology and Anatomy, Hon. Cert.; Midwifery, Hon. Cert.; Dresser's Surg. Repts., Hon. Cert.
1850. Clinical Medicine, Prize.

---

* Assistant Physician to, and Demonstrator of Minute Pathology at St. Thomas's Hospital. Assistant Physician, Brompton Hospital.

† Late Surgical Tutor, Surgeon to Great Northern Hospital, Surgeon to St. Mark's Hospital.

‡ Assistant Surgeon to, and Joint Lecturer on Anatomy at, St. Thomas's Hospital. Member of the Board of Examiners for the Fellowship of the Royal College of Surgeons; formerly Demonstrator of Anatomy, and Surgical Registrar at St. Thomas's Hospital, late Examiner in Anatomy, Royal College of Physicians, Medical Officer to H.B.M. Legation in Japan, and Medical Director of the Japanese Naval Medical College, Tokio.

§ Assistant Surgeon to the West London Hospital. Surgical Registrar at St. Thomas's Hospital.

‖ Surgeon to Charing Cross Hospital.

BATESON (J. M.), Kirkby-Lonsdale.
1855. Chemistry, Hon. Cert.

BATTLE (W. H.),* Hanworth, Lincolnshire.
s 1874. Hon. Cert.
w 1875. 2nd Year Student, 3rd College Prize.
w 1876-7. 3rd Year Student, The First Solly Medal and Prize.

BEAL (P.), Plymouth.
1844. Chemistry. 2nd Prize.

BEARDSLEY (A.), Shipley, Derby.
1843. Midwifery, 2nd Prize.

BEDFORD (R. J.),† Sleaford.
1858. Midwifery, Hon. Cert.

BENWELL (H. D.), Greenwich.
1843. Chemistry, 2nd Prize.
1845. Physiology and Anatomy, Medal.
1847. Clinical Medical Reports, Prize; Gen. Proficiency, Trea. Medal.

BELL (C. N.), Rochester.
1867. 3rd Year Student, 3rd Coll. Prize.

BELL (J. V.), Rochester.
1859. 1st Year Student, Treasurer's 2nd Prize; Matriculation Examination—Classics and Mathematics, Hon. Cert.
1860. 2nd Year Student, Hon. Cert.
1861. 3rd Year Student, 3rd Coll. Prize.

BERNAYS (H. L.), Chatham.
w 1873. Prosector's Prize.

BERNAYS (A. V.), Great Stanmore.
s 1876. 1st Year Student, Hon. Cert.
w 1880–81. 3rd Year Student, 1st Coll. Prize.

BICKLE (L. W.), St. Leonard's-on-Sea.
s 1878. 1st Year Student, 3rd Coll. Prize;
s 1879. 2nd Year Student, 1st Coll. Prize.

BIDDLE (D.), Wotton-under-Edge.
1860. 1st Year Student, Trea. Prize; Matriculation Exam.—Prize.
1861. 2nd Year Student, Hon. Cert.
1862. 3rd Year Student, Hon. Cert.

BIDWELL (H.), Ely.
w 1883–4. 4th Year Student, qualified for Mead Medal.

BIDWELL (L. A.), Lee.
w 1885–6. 4th Year Student, qualified for Cheselden Medal.

BIRTWELL (H. H.), Enfield, Lancashire.
1865. 3rd Year Student, Hon. Cert.

BLACK (J.), Kentish Town.
w 1872. 2nd Year Student, Prosector's Prize.

BLACK (W. S.), Chesterfield, Derby.
1855. Midwifery, Hon. Cert.; Medicine, Hon. Cert.

BLACKETT (W. C.), Durham.
1851. Descriptive Anatomy, Hon. Cert.

BLADES (C. C.)
1855. Midwifery, Hon. Cert.

BONE (W.), Camberwell.
1857. 1st Year Student, Trea. 1st Prize.
1858. 2nd Year Student, Trea. 1st Prize.

BONSER (J. H.), Sutton-in-Ashfield.
1871. 3rd Year Student, 2nd Coll. Prize; Cheselden Medal.

BOULGER (J.), Gravesend.
1870. 1st Year Student, Sir Wm. Tite's Scholarship.
1871. 2nd Year, Sir W. Tite's Scholarship.
w 1872. 3rd Year, Sir W. Tite's Scholarship.

BOX (C. R.), Camberwell.
w 1885–6. 1st Year Student, 2nd Coll. Prize.

BOWEN (E.), Llyn Gwair, Pembroke.
1847. Descriptive and Surgical Anatomy, Hon. Cert.; Materia Medica, Hon. Cert.
1848. Descriptive and Surgical Anatomy, Hon. Cert.; Physiology and Anatomy, Ho.Cert.; Botany, Hon. Cert.; Comparative Anatomy, Hon. Cert.

BOWN (J. Y.), America.
1848. Descriptive and Surgical Anatomy, Hon. Cert.

BRAKE (J.), Holt, Wilts.
1851. Matriculation Scholarship, Hon. Cert.; Descriptive Anatomy, Hon. Cert.; 1st Year Student, Scholarship; Chemistry, Hon. Cert.
1852. 2nd Year Student, Scholarship; Physiology, Prize; Materia Medica, Hon. Cert. Botany, Hon. Cert.; Medicine, Hon. Cert.
1853. 3rd Year Student, Scholarship; Clinical Medicine, Trea. Prize; Midwifery, Prize; Forensic Medicine, Prize.

BRISTOWE (J. S.),‡ Camberwell.
1847. Medicine, Hon. Cert.; Physiology and Anatomy, Hon. Cert.; Descriptive and Surgical Anatomy, Prize.
1848. Descriptive and Surgical Anatomy, Hon. Cert.; Physiology and Anatomy, Prize; Practical Chemistry, Prize; Botany, Prize; Midwifery, Hon. Cert.; Comparative Anatomy, Prize; Surgery, Prize; General Proficiency, Treasurer's Medal.

BRITTON (T.), Doncaster.
1861. 1st Year Student, Hon. Cert.

BROCK (J.), Northwich.
w 1872. 1st Year Student, 2nd Coll. Prize.
s 1872. Hon. Cert.

BROCKATT (A. A.), Denmark Hill.
w 1884–5. 4th Year Student, qualified for the Mead Medal.

BROWN (F. G.), London.
1860. 1st Year Student, Hon. Cert.
1861. 2nd Year Student, 3rd Coll. Prize.
1862. 3rd Year Student, 3rd Coll. Prize.

BROWN (G. D.), Croydon.
1851. Physiology, Hon. Cert.;

* Resident Assistant Surgeon to St. Thomas's Hospital, late Surgical Registrar.

† Late Assistant-Surgeon at the "Dreadnought" Hospital Ship.

‡ Physician to, and Joint Lecturer on Medicine at, St. Thomas's Hospital. Late Lecturer on General Pathology.

Botany, Prize;
Surgery, Hon. Cert.;
1852. Physiology, Hon. Cert.;
Physical Society's Essay, Treasurer's Prize;
Medicine, Hon. Cert.;
Pathology, Prize.

Brown (T. J. E.), Dorchester.
1848. Practical Midwifery, Hon. Cert.

Bucknill (E. R.), Bedford.
1855. 1st Year Student, Scholarship;
Midwifery, Hon. Cert.;
Chemistry, Hon. Cert.;
Descriptive Anatomy, Hon. Cert.;
Materia Medica, Hon. Cert.

Bull (J.), Norwood, Surrey.
1848. Midwifery, Hon. Cert.

Burden (H.), Belfast.
w 1886–7. 1st Year Student, The William Tite Scholarship.

Butler (W.), Stoke Newington.
1845. Materia Medica, Hon. Cert.

Caiger (F. F.), Gloucester-st., S.W.
w 1879–80. 1st Year Student, 3rd Coll. Prize.
w 1880–81. 2nd Year Student, 3rd Coll. Prize.
w 1882–83. 4th Year, the Mead Medal.

Cann (R. T.), Plymouth.
s 1882. 2nd Year Student. 1st Coll. Prize.
s 1883. 3rd Year Student. 2nd Coll. Prize.

Carpenter (A.),* Rothwell.
1848. Descriptive and Surgical Anatomy, Hon. Cert.;
Chemistry Prize;
Materia Medica, Hon. Cert.;
Matriculation Scholarship, Prize.
1849. Physiology Hon. Cert.;
Midwifery, Hon. Cert.;
Descriptive Anatomy, 1st Prize;
Medicine, 2nd Prize.
1850. Physiology, Hon. Cert.;
Descriptive Anatomy, Hon. Cert.;
Botany, Prize;
Medicine, Prize;
Surgery, Prize;
General Proficiency, Treasurer's [Medal.
1851. (Accoucheur) Midwifery, Prize;
Essay on Chorea, Mr. N. Smith's Prize.
1852. Surgical Reports, President's Prize;
Medical Reports, Dr. Roots' Prize;
Ophthalmic Reports, a Governor's Prize;
Clinical Medicine, Senior Prize.

Carpenter (A. B.), Croydon.
w 1876–7. 1st Year Student, Hon. Cert.;

Carpenter (G. A.), Streatham.
w 1880–81. 1st Year Student, 3rd Coll. Prize.
s 1881. 1st Coll. Prize.
w 1881–2. 2nd Year Student, 3rd Coll. Prize.
Prosector's Prize.

Carr (J. T.), Bombay.
1844. Surgery, Prize.

Castle (H.), Newport, I. of Wight.
w 1874–5. 1st Year Student, 2nd Coll. Prize.
s 1875. 3rd College Prize.
w 1876–7. Physical Society's 3rd Year's Prize.

Caudle (A. W. W.), Henfield, Sussex.
1858. Clinical Medicine, Prize.

* Late Lecturer on State Medicine at St. Thomas's Hospital.

Chaldecott (C. W.), Dorking.
1849. Descriptive Anatomy, Hon. Cert.;
Chemistry, Hon. Cert.;
Materia Medica, 2nd Prize;
1st Year Student, Scholarship.
1850. Physiology, Hon. Cert.
Surgery, Prize.
1851. Physiology, Prize;
Descriptive Anatomy, Hon. Cert.;
Medicine, Hon. Cert.;
Physical Society's Essay, Treasurer's Prize;
Surgery, Hon. Cert.;
General Proficiency, Treasurer's Silver Medal.

Chaldecott (T. A.), Newington.
1848. Descriptive Surgical Anatomy, Hon. Cert.;
Chemistry, Hon. Cert.; [Cert.;
Botany, Hon. Cert.;
Materia Medica, Hon. Cert.;
Comparative Anat., Hon. Cert.;
Matriculation Scholarship, Prize;
Practical Chemistry, Hon. Cert.
1849. Physiology, Hon. Cert.;
Midwifery, Hon. Cert.;
Surgery, 2nd Prize;
Medicine, Hon. Cert.
1850. Physiology, Hon. Cert.;
Forensic Medicine, Prize;
Pathology, Prize;
Medicine, Hon. Cert.;
Surgery, Hon. Cert.

Chapman (C. E.), Preston.
1855. Midwifery, Hon. Cert.;
Materia Medica, Hon. Cert.
1857. Clinical Assistant, Prize;
Physical Society's Essay, Prize.

Charpentier (A. E.).
1882–3. 4th Year, The Mead Medal Exam., Special Mention and Hon. Cert.

Cherry (A. H.), Clapham.
1845. Clinical Medicine, Hon. Cert.

Chipperfield (W. N.), Reading.
1852. 1st Year Student, Scholarship;
Descriptive Anatomy, Prize.
1853. 2nd Year Student, Scholarship.
Physiology, Prize;
Descriptive Anatomy, Prize;
Midwifery, Prize;
Physical Society's Essay, Prize;
Medicine, Prize;
Surgery, Prize.
1854. 3rd Year Student, Scholarship;
Medicine, Prize;
Descriptive Anatomy, Hon. Cert.;
Midwifery, Prize;
Physical Society's Essay, Treasurer's Prize;
Forensic Medicine, Prize;
Chemistry, Hon. Cert.;
Comparative Anatomy, Prize;
Pathology, Prize;
Surgery and Surgical Anatomy, Cheselden Medal;
Clinical Medicine, Treasurer's Prize,
Physiology, Prize; [Medal.
General Proficiency, Treasurer's

Clapton (E.),† Stamford.
1851. Matriculation Scholarship, Hon. Cert.;
1st Year Student, 1st Scholarship;

† Late Physician to, and Lecturer on Materia Medica at, St. Thomas's Hospital. Physician to the Magdalen Hospital.

Descriptive Anatomy, Prize;
Chemistry, Prize.
1852. 2nd Year Student, Scholarship;
Physiology, Prize;
Materia Medica, Prize;
Botany, Prize;
Medicine, Hon. Cert.
1853. 3rd Year Student, Scholarship;
Physiology, Hon. Cert.; [Prize;
Clinical Medicine, Treasurer's
Midwifery. Hon. Cert.;
Physical Society's Essay, Treasurer's Prize;
Medicine, Hon. Cert.;
Forensic Medicine, Hon. Cert.;
Chemistry, Hon. Cert.;
Surgery, Hon. Cert.
1854. Ophthalmic Reports, Governor's Prize;
Clinical Medicine, Mr. N. Smith's Prize.

CLAPTON (W.), Stamford.
1855. Midwifery, Hon. Cert.;
Descriptive Anatomy, Hon. Cert.;
Materia Medica, Prize.
1856. Clinical Medicine, Prize.
1858. Midwifery, Hon. Cert.

CLARKE (A.), Dorking.
1856. 1st Year Student, Treasurer's 2nd Prize.

CLARK (J. H.), Jamaica.
1867. 2nd Year Student, Physical Society's 2nd Year's Prize.

CLARKSON (J. W.), Surbiton.
w 1872. 2nd Year Student, 3rd Coll. Prize.
w 1873. 3rd Year Student, 2nd Coll. Prize;
Surgery and Surgical Anatomy, Hon. Cert.

CLEGHORN (G.), Bedford.
1872. 3rd Year Student, Hon. Cert.

CLUTTERBUCK (M. C.), Bath.
w 1886–7. 1st year Student, 2nd Entrance Science Scholarship.

COGGINS (T.), Hayford, Woodstock.
1847. Chemistry, Hon. Cert.
1848. Descriptive and Surgical Anatomy, Hon. Cert.;
Midwifery, Hon. Cert.
1849. Midwifery, Hon. Cert.;
Medicine, Hon. Cert.
1850. Surgical Reports, Prize;
(Accoucheur) Midwifery, Hon. Cert.

COLBY (W. T.), Malton, York.
1849. Descriptive Anatomy, Hon. Cert.;
Midwifery, Hon. Cert.

COLLIER (T. P.), Worship Square.
1847. Practical Midwifery, Prize.

COMPLIN (E. J.), Charterhouse Sq.
1851. Clinical Medicine, Prize;
Medical Cases, President's Prize;
Surgery, Hon. Cert.
1852. Midwifery, Hon. Cert.;
Pathology, Hon. Cert.

COOK (S. B.), Cape of Good Hope.
s 1883. 1st year Student, 2nd Coll. Prize.

COOK (W.), Gainsboro'.
1844. Chemistry, Hon. Cert.;
Materia Medica, Hon. Cert.

COOKE (C. W.), Regent's Park.
w 1883–4. 1st year Student, 1st Entrance Science Scholarship.

COOKE (J.), Stamford.
1855. Comparative Anatomy, Prize;
Midwifery, Hon. Cert.;
Physiology, Hon. Cert.

CORY (R.),* Carlisle.
1870. Physical Society's 3rd Year's Prize.

COUSINS (J. W.), Portsea.
1854. Descriptive Anatomy, Hon. Cert.;
Chemistry, Hon. Cert.
1855. Surgery, Prize;
Midwifery, Prize;
Midwifery, Hon. Cert.
1856. Clinical Medicine, Prize;
Surgery and Surgical Anatomy, Cheselden Medal.

COWEN (P.), Kennington.
1862. 1st Year Student, 2nd Coll. Prize.
1863. 2nd Year Student, 2nd Coll. Prize.
1864. 3rd Year Student, 2nd Coll. Prize.

COWEN (T. P.), Upper Holloway.
w 1884–5. 1st Year Student, ½ 1st and 2nd Coll. Prizes.
s 1885, 1st Year Student, 2nd Coll. Prize
w 1885-6. 2nd Year Student, 1st. Coll. Prize.
s 1886. 2nd Year Student, 1st College Prize.
w 1886-7. 3rd Year Student, 2nd Coll. Prize.

COX (E.), Maiden Newton, Dorsetshire.
1866. 1st Year Student, 3rd Coll. Prize.
1868. 3rd Year Student, 2nd Coll. Prize.

COXWELL (C. F.), Brighton.
1880. 4th Year Student, the Mead Medal.

CRICK (S. A.), Cosby-hill, Leicestershire.
s 1875. 1st Year Student, Hon. Cert.
w 1875–6. Prosector's Prize.
w 1876-7. 3rd Year Student, 3rd Coll. Prize.

CROFT (J.),† Clapton.
1851. Descriptive Anatomy, Hon. Cert.
1853. Midwifery, Hon. Cert.

CROFTS (W. C.), Rowston, Lincoln.
1855. Surgery, Hon. Cert.;
Midwifery, Hon. Cert.

CROSBY (T. B.), Gosberton, Lincoln.
1851. Physiology, Prize;
Descriptive Anatomy, Prize;
Medicine, Prize;
Surgery, Prize.
1852. Physiology, Prize;
Descriptive Anatomy, Hon. Cert.;
Medicine, Hon. Cert.;
Forensic Medicine, Prize;
Practical Chemistry, Prize;
Surgery, Hon. Cert.;
Surgery and Surgical Anatomy, *Bronze* Cheselden Medal;
Comparative Anatomy, Prize.

CROSSMAN (J.), Redruth.
1871. Physical Society's 1st Year's Prize.
1872. Physical Society's 2nd Year's Prize.
1873. Physical Society's 3rd Year's Prize.

---

* Assistant Obstetric Physician to, and Joint Lecturer on Forensic Medicine at, St. Thomas's Hospital.

† Member of Council Royal College of Surgeons. Surgeon to, and Special Lecturer on Clinical Surgery at, St. Thomas's Hospital; late Assistant Demonstrator of Anatomy.

CROWDY (F. D.), Bath.
w 1884–5. 4th Year Student, the Mead Medal.

DAVIES (D.), Carmarthenshire.
1843. Chemistry, 1st Prize;
Midwifery, Hon. Cert.;
Materia Medica, Prize.
1844. Medicine, Hon. Cert.;
Physiology and Anatomy, Hon. Cert.
1845. Clinical Surgical Reports, Medal.

DAVIES (D. S.), Bristol.
1875–6. Physical Society's 1st Year's Prize.

DAY (W. H.), Norwich.
1844. Surgery, Prize;
Physical Society's Essay, Hon. Cert.;
Dresser's Clinical Surgery, Prize.

DECK (J. F.), Nelson, New Zealand.
1860. 1st Year Student, 1st Coll. Prize.
1861. 2nd Year Student, 1st Coll. Prize;
Physical Society's Prize.
1862. 3rd Year Student, 1st Coll. Prize;
Physical Society's Prize;
Cheselden Medal;
Treasurer's Gold Medal.

DICKERSON (S.H.), Hartest, Suffolk.
1853. Physiology, Hon. Cert.;
Materia Medica, Hon. Cert.;
Midwifery, Hon. Cert.;
Medicine, Hon. Cert.

DIXON (E. L.), Preston, Lancashire.
1852. 1st Year Student, Scholarship;
Chemistry, Hon. Cert.
1853. 2nd Year Student, Scholarship;
Physiology, Hon. Cert.;
Materia Medica, Prize;
Descriptive Anatomy, Hon. Cert.;
Midwifery, Hon. Cert.;
Botany, Prize;
Medicine, Hon. Cert.
1854. 3rd Year Student, Scholarship;
Descriptive Anatomy, Hon. Cert.;
Practical Chemistry, Prize;
Physiology, Hon. Cert.

DOBSON (N. C.),* Holbeach, Lincolnshire.
1865. 1st Year Student, 1st Coll. Prize.
1866. 2nd Year Student, 1st Coll. Prize.
1867. 3rd Year Student, 2nd Coll. Prize;
A Prize and Hon. Cert. for Proficiency in Surgery and Surgical Anatomy at the Cheselden Medal Examination;
Treasurer's Gold Medal.

DRAKE (A. J.), Kingsclere, Hants.
1870. 3rd Year Student, 1st Coll. Prize.

DRAKE (C. H.), Kingsclere, Hants.
1857. 1st Year Student, Hon. Cert.;
1858. 2nd Year Student, Treasurer's 1st Prize;
Clinical Medicine, 2nd Prize.
1859. 3rd Year Student, Hon. Cert.;
Surgery and Surgical Anatomy, Cheselden Medal;
General Proficiency, Treasurer's Medal.

DRAKE (T.), Kingsclere, Hants.
1858. 2nd Year Student, Treasurer's 1st Prize;
1859. 2nd Year Student, President's Prize.
1860. 3rd Year, 1st College Prize;
Surgery and Surgical Anatomy, Cheselden Medal;
General Proficiency, Treasurer's Medal.

DREW (G. F. A.), Plymouth.
1848. Descriptive and Surg. Anat. Prize;
Chemistry, Hon. Cert.;
Botany, Prize;
Comparative Anatomy, Hon. Cert.;
Practical Chemistry, Prize;
Gen. Proficiency, Hon. Cert.
1849. Physiology, 2nd Prize;
Midwifery, Hon. Cert.;
Descriptive Anatomy, Hon. Cert.;
Medicine, Hon. Cert.
1850. Physiology, Prize;
Descriptive Anatomy, Hon. Cert.
Medicine, Hon. Cert.;
Surgery, Hon. Cert.

DUKES (C.), Dalston.
1865. 1st Year Student, Hon. Cert.
1867. 3rd Year Student, Hon. Cert.;
Prosector's Prize and Hon. Cert.

DUNCAN (H.), London.
w 1882-3. 1st Year Student, 1st Entrance Science Scholarship, 1st Coll. Prize.
w 1883–4. 2nd Year Student, Prosector's Prize.

DUNCAN (W. A.),† Manchester.
w 1876–7. 1st Year Student, The William Tite Scholarship.
s 1877. 1st College Prize.
w 1877–8. 2nd Year Student, The Musgrove Scholarship.
w 1877–8. 2nd Year Physical Society's Prize.
s 1878. 1st College Prize.
w 1878–9. 2nd Tenure Musgrove Scholarship.
1st College Prize;
3rd Year Physical Society's Prize;
Grainger Testimonial Prize.
1880. 4th Year Student, The Cheselden Medal.
The Treasurer's Medal.
w 1881–2. The Solly Medal and Prize.

DUNMAN (G.), Camberwell.
1852. Chemistry, Hon. Cert.
1854. Midwifery, Hon. Cert.

DYER (F. J.), Blackheath.
1847. Chemistry, Prize;
Materia Medica, Hon. Cert.;
1849. Physiology, Hon. Cert.;
Midwifery, 2nd Prize;
Medicine, Hon. Cert.

ECCLES (C. H.), Brigg.
w 1884–5. 2nd Year Student, 1st Coll. Prize.
s 1885. 2nd Year's Student, 1st Coll. Prize.
w 1885–6. 3rd Year's Student, 1st Coll. Prize.
s 1886. 3rd Year Student, 1st College Prize.

EDDOWES (J. H.), Loughboro'.
1843. Physiology and Anatomy, Hon. Cert.;
Chemistry, Hon. Cert.;
Comparative Anatomy, Prize.
1844. Physiology and Anatomy, Hon. Cert.;
Clinical Medical Reports, Silver Medal.
1845. Clinical Medicine, Prize.

* Surgeon to the Bristol General Hospital and Lecturer on Surgery at the Bristol Medical School.

† Assistant Obstetric Physician to Middlesex Hospital. Obstetric Physician Royal Hospital for Women and Children. Examiner in Midwifery, Examining Board in England.

EDDOWES (W. D.), Loughboro'.
1845. Descriptive and Surgical Anatomy, Prize.

EDMONDS (S.), St. Helen's, Lancashire.
1852. Chemistry, Hon. Cert.
1853. Midwifery, Hon. Cert.;
Medicine, Hon. Cert.;
Surgery, Hon. Cert.
1854. Surgery and Surgical Anatomy, Hon. Cert.;
Clinical Medicine, Treas. Prize;
Clinical Medicine, Pres. Prize.
1855. Surgical Reports, Pres. Prize;
Clinical Medicine, Dr. Roots' Prize.

EDWARDS (S.), Littlehampton.
1855. Midwifery, Hon. Cert.

EDWARDS (V.), Woodbridge, Suffolk.
1843. Surgery, Prize.

ELBOROUGH (P. J.), Herne Bay.
1845. Chemistry, Hon. Cert.
1847. Medicine, Hon. Cert.;
Midwifery, Prize.
1848. Medicine, Hon. Cert.;
Surgery, Hon. Cert.;
Surgical Report, Pres. Prize.

ELLIS (J.), Portsea, Hants.
1857. Clinical Assistant (Medicine), Hon. Cert.

ELWIN (C. J.), London.
1855. Practical Midwifery, Prize.

EVANS (C. W. DE LACEY), Bangor.
w 1876-7. 3rd Year Student, The Solly Prize and Hon. Cert.

FAIRBANK (J.), Islington.
1865. 1st Year Student, Hon. Cert.
1866. 2nd Year Student, Prosec. Prize.

FARRANT (S.), Collumpton, Devon.
1859. 2nd Year Student, Hon. Cert.
1860. 3rd Year Student, Hon. Cert.

FAULKNER (R.), Camberwell.
1844. Botany, Prize;
Clinical Medical Reports, Hon. Cert.

FAWSSETT (F.), Surbiton.
w 1883-4. 1st Year Student, 2nd Entrance Science Scholarship. The William Tite Scholarship.
s 1884. 1st Year Student, 1st Coll. Prize.
w 1884-5. 2nd Year Student, The Musgrove Scholarship.
w 1885-6. 3rd Year Student, 2nd tenure of Musgrove Scholarship, with 3rd College Prize.
w 1886-7. 4th Year Student. The Cheseldcn Medal. Treasurer's Gold Medal.

FELL (W.), Kensington.
w 1878-9. 2nd Year Student Prosector's Prize.

FENTON (H. A. H.), Westminster.
w 1875-6. 1st Entrance Science Scholarship.
s 1876. 1st Year Student, 1st College Prize.

FERNIE (A.), Yeldon, Beds.
1853. Physiology, Hon. Cert.;
Surgery, Hon. Cert.

FERNIE (W. T.), Yeldon, Beds.
1852. Practical Midwifery, Prize;
Midwifery, Hon. Cert.

FISHER (T.), St. Michael's.
s 1872. 1st Year Student, Hon. Cert.
s 1873. 2nd Year Student, 2nd College Prize.
w 1874. 2nd Year Student, 3rd College Prize.
w 1875. 3rd Year Student, Surgery and Surgical Anatomy, Prize, and Cert. of Hon.

FORD (G. W.), Cape of Good Hope.
w. 1880-81. 3rd Year Student, Prosector's Prize.

FOWLER (J. T.), Winterton, Lincoln.
1854. Chemistry, Hon. Cert.
1855. Botany, Hon. Cert.

FOWLER (J.), Winterton, Lincoln.
1859. 1st Year Student, Hon. Cert.
1860. 2nd Year Student, 2nd College Prize.
1861. 3rd Year Student, 2nd College Prize.

FREEMAN (D.), Kennington.
1859. Clinical Medicine, Prize.

FREEMAN (A. J.), Southsea, Hants.
1865. 3rd Year Student, Hon. Cert.

FULTON (J. A.), Stockwell.
1852. Botany, Hon. Cert.
1853. Practical Chemistry, Prize.

FURNIVAL (F. H.), Nottingham.
w 1878-9. 1st Year Student;
The Wm. Tite Scholarship.

GARDNER (E. B.), London.
1858. Matriculation Examination—Classics and Mathematics, Prize.

GARTON (W.), St. Helier's.
1870. 2nd Year Student, 2nd College Prize.
Physical Society's 2nd Year's Prize.
1871. Physical Society's 3rd Year's Prize.

GEORGE (C. F.), Kirton-on-Lindsay.
1855. Midwifery, Hon. Cert.
1856. 2nd Year Student, Dr. Roots' Prize.
1857. 3rd Year Student, Hon. Cert.;
Surgery and Surgical Anatomy, Cheselden Medal.

GERVIS (F. H.), Tiverton.
1861. 1st Year Matriculation Scholarship.—College Prize, 2nd College Prize.
1862. 2nd Year Student, 1st College Prize.
1863. 3rd Year Student, Hon. Cert. and Physical Society's Prize.

GERVIS (H.),* Tiverton.
1856. 1st Year Student, Trea. 1st Prize;
Matriculation Examination, Physics, &c., Prize.
1857. 2nd Year Student, Pres. Prize;
Physical Society's Essay, Prize.
1858. Clinical Assistant (Medicine), 2nd Prize;
Physical Society's Essay, Prize;
General Proficiency, Treasurer's Medal.

GILES (F. W.), Henley-on-Thames.
w 1875-6. 3rd Year Student, Hon. Cert.

GIMBLETT (J.), Taunton.
1860. 1st Year Student, Hon. Cert.

GIMLETTE (G. H. D.), Southsea.
s 1874. 1st Year Student. Hon. Cert.
w 1875-6. 3rd Year Student, Hon. Cert.
w 1876-7. Physical Society's 3rd Year's Prize.

---

* Obstetric Physician to, and Lecturer on Midwifery and Diseases of Women and Children at, St. Thomas's Hospital. Consulting Physician to the Royal Maternity Charity. Examiner in Obstetric Medicine, Royal College of Physicians.

GLOVER (J. P.), Lansdowne Road.
w 1881–2. 3rd Year Student, 3rd Coll. Prize.

GODDARD (E.), London.
1860. Matriculation Examination, Classics, &c., Prize.

GODDARD (L.), London.
1856. Matriculation Examination, Classics and Mathematics, Prize.

GODFREY (A. E.), Northampton.
s 1883. 2nd Year Student, 2nd Coll. Prize.
w 1883–4. 3rd Year Student, 2nd Coll. Prize.

GOODDY (E. S.), Hampstead.
w 1882–3. 2nd Year Student, 3rd Coll. Prize.
s 1883. 2nd Year Student, 1st Coll. Prize.

GOWLAND (W.), London.
1845. Botany, Hon. Cert.

GRABHAM (C.), Islington.
1857. Matriculation Examination, Modern Languages, Prize.

GRABHAM (G. W.),* Islington.
1855. Matriculation Examination, Scholarship;
Midwifery, Hon. Cert.;
Materia Medica, Hon. Cert.

GRABHAM (J.), Rochford, Essex.
1848. Descriptive and Surgical Anatomy, Hon. Cert.;
Chemistry, Hon. Cert.;
Botany, Hon. Cert.;
Comparative Anatomy, Prize.
1850. Physiology, Hon. Cert.
1851. Physiology, Hon. Cert.;
Descriptive Anatomy, Hon. Cert.;
Forensic Medicine, Prize;
Surgery, Prize;
Midwifery, Hon. Cert.

GRABHAM (M. C.), Islington.
1860. 2nd Year Student, Hon. Cert.
1861. 3rd Year Student, Hon. Cert.

GREAVES (C. A.), Derby.
1861. 1st Year Student, Treasurer's Prize; Matriculation Examination, Hon. Cert.
1862. 2nd Year Student, 2nd College Prize; Physical Society's Prize.
1863. 3rd Year Student, 1st College Prize; Physical Society's Prize;
Cheselden Medal.

GREEN (C. D.), New Cross.
w 1879–80. 1st Year Student, The Wm. Tite Scholarship.
s 1880. 3rd College Prize.
w 1880-81. 1st College Prize.
s 1882. 1st Coll. Prize.
w 1882–3. 4th Year Student, qualified for Treasurer's Gold Medal.

GREEN (J. T.), Peckham, Surrey.
1865. 1st Year Student, Physical Society's Prize.

GREEN (M. H.), Peckham.
s 1873. 1st Year Student, 2nd College Prize.

GROSE (S.), Boston, Lincoln.
1858. 2nd Year Student, Hon. Cert.
1859. Physical Society's Essay Prize.

GRIFFITHS (A. L.), London.
1859. Midwifery, Hon. Cert.

* Government Inspector of Lunatic Asylums and Hospitals, New Zealand. Late Resident Medical Superintendent at Earlswood Asylum.

GULLIVER (G.),† Canterbury.
w 1876-7. Physical Society's 2nd Year's Prize.

GURNEY (R. A. F.), Rampton, Cambridge.
1851. Practical Midwifery, Prize.

HAGUE (S.),‡ Camberwell.
1863. 1st Year Student, 2nd Coll. Prize.

HAIG-BROWN (C. W.), Godalming.
s 1878. 1st Year Student, 2nd College Prize;
w 1878-9. 2nd Year Student, 2nd College
w 1880–81. The Cheselden Medal. [Prize.

HAMMERTON (E.), Elland, York.
1857. 1st Year Student, Hon. Cert.

HAMMOND (J. H.), Bridlington, York.
1850. Medical Cases, President's Prize.

HARDING (J. A.), Bath.
1859. Clinical Medicine, 2nd Prize.
1860. Clinical Assistant (Medicine), 1st Prize.

HARPER (R.), Brighton.
1844. Clinical Surgical Reports, Hon. Cert.
1845. Physical Society's Essay, Prize;
Dresser's Clinical Surgery, Prize.

HASLAM (W. F.),§ Reading.
s 1876. 2nd Year Student, 1st College Prize.
w 1877-8. The Cheselden Medal.

HATCHETT (F. W.), S. Wales.
s 1880. 1st Year Student, 1st College Prize.

HATTON (G. S.), Newent, Glo'stershire. [Prize.
w 1876-7. 2nd Year Student, Prosector's

HAWKINS (H. P.),‖ Hawkhurst.
w 1882–3. 1st Year Student, The William Tite Scholarship.
w 1883–4. 2nd Year Student. The Peacock Scholarship.
w 1884–5. 3rd Year Student, 2nd tenure of Peacock Scholarship and 1st Coll. Prize.
w 1885–6. 4th Year Student, qualified for Mead Medal.

HEELIS (R.), Carshalton.
s 1877. 1st Year Student, 2nd College Prize.
s 1878. 2nd Year Student, 2nd Coll. Prize.

HEFFERNAN (H. H.), Southsea.
w 1883–4. 1st Year Student, 2nd Coll. Prize.
w 1886–7. 4th Year Student, qualified for Cheselden Medal.

HEIGHTON (T.), Leicester.
w 1873. 3rd Year Student, Hon. Cert.

HEWLETT (T. J.), Harrow.
1850. Matriculation Scholarship, Prize.

HEYGATE (W. N.), Harslope, Bucks.
1863. 2nd Year Student, Hon. Cert.
1864. 3rd Year Student, Hon. Cert.

HICKS (J. W.),¶ Highgate New Town, N.
1859. 1st Year Student, Trea.'s 1st Prize.

† Assistant Physician to, and Lecturer on Comparative Anatomy at, St. Thomas's Hospital, Assistant Physician to London Fever Hospital.

‡ Late Medical Registrar at St. Thomas's Hospital.

§ Assistant Surgeon to the Birmingham General Hospital, late Demonstrator of Anatomy at St. Thomas's Hospital.

‖ Radcliffe Travelling Fellow, Oxford, 1886.

¶ Late Lecturer on Botany at St. Thomas's Hospital; late Curator of the Museum.

1860 2nd Year Student, 1st College Prize; Physical Society's Prize.
1861. 3rd Year Student, 1st College Prize; Physical Society's Prize; Cheselden Medal; Treasurer's Gold Medal.

HIGGINS (A. H.), Bermondsey.
1857. Midwifery, Hon. Cert.

HILDITCH (J.), Sandbach, Cheshire.
1857. 1st Year Student, Hon. Cert.
1858. Physical Society's Essay, Prize.
1859. Essay on Neuralgia, Mr. N. Smith's Prize.

HOBHOUSE (E.), Batcombe.
w 1885–6. 3rd Year Student, 2nd Coll. Prize.
w 1886–7. 4th Year Student, qualified for for the Mead Medal.

HODGES (H. B.).
1855. Midwifery, Hon. Cert.

HODGES (R.), London.
1843. Physiology and Anatomy, Hon. Cert.; Medicine, Hon. Cert.; Clinical Medicine, Hon. Cert.; Surgical Essay, Silver Medal.

HO KAI, Hong Kong, China.
w 1875–6. 1st Year Student, Hon. Cert.
s 1876. Hon. Cert.
w 1876–7. 2nd Year Student, Hon. Cert.

HOLBERTON (H. N.), Hampton.
w 1876–7. 2nd Entrance Science Scholarship, and 2nd College Prize.
w 1877–8. 2nd Year Student, 1st Coll. Prize.

HOOPER (J. H.), Upton Warren.
1858. 1st Year Student, Hon. Cert.
1859. 2nd Year Student, College Prize.
1860. 3rd Year Student, Hon. Cert.

HOPTON (A. W.), Stockwell.
1851. Descriptive Anatomy, Hon. Cert.

HOUSE (F. M.), Chilbolton, Hants.
w 1886–7. 4th Year Student, qualified for the Mead Medal.

HOWELL (T.), London.
1850. Practical Midwifery, Prize.

HUBBARD (J. W.), Leicester.
1847. Clinical Medical Reports, Prize; Medicine, Prize; Physiology and Anatomy, Hon. Cert. Physical Society's Essay, Treasurer's Prize.

HULL (W. W.), Acton.
w 1878-9. 2nd Entrance Science Scholarship.
w 1881-2. The Mead Medal.

HUNT (J. A.), Derby.
w 1873. 1st Year Student, Hon. Cert.
w 1874. Prosector's Prize.

HUNTER (W. F.), Margate.
1859. 1st Year Student, Hon. Cert.; Matriculation Examination in Classics and Mathematics, Prize; Matriculation Examination in Modern Languages, Prize.
1860. 2nd Year Student, 3rd Coll. Prize.
1861. 3rd Year Student, Hon. Cert.

HURMAN (H. B.), Bridgewater.
1853. Midwifery, Hon. Cert.

HUTTON (J. S.), Sevenoaks.
w 1881–2. Entrance Science Scholarship. 2nd Coll. Prize.
s 1882. 1st Coll. Prize.
s 1884. 3rd Year Student, ½ 1st and 2nd Coll. Prizes.
w 1884–5. 4th Year Student, qualified for the Mead and Treasurer's Medals.

ILES (D.), Fairford.
1863. 2nd Year Student, Hon. Cert.
1864. 3rd Year Student, Hon. Cert.

INGLIS (W. W.),* Brixton Hill.
1864. 1st Year Student, 2nd Coll. Prize.
1865. 2nd Year Student, 2nd Coll. Prize.
1866. 3rd Year Student, 3rd Coll. Prize Cheselden Medal.

IVES (R.).
1855. Midwifery, Hon. Cert.

JACKSON (T. C.), Rotherhithe.
1844. Materia Medica, Hon. Cert.

JACOB (E. H.), Winchester.
w 1875-6. Physical Society's 3rd Year's Prize.

JACOBSON (T. E.), Sleaford, Lincoln.
1852. Practical Midwifery, Prize.

JARDINE (J. L.), Brixton.
1848. Physiology and Anatomy, Hon. Cert.
1850. Medical Reports, Dr. Roots' Prize.

JAY (M.), Wallaroo, South Australia.
w 1877-8. 1st Year Student, 3rd Coll. Prize.
w 1878-9. 2nd Year Student, 2nd College Prize; Prosector's Prize.

JEFFERSON (T. J.), Hull.
1861. 2nd Year Student, Hon. Cert.
1862. 3rd Year Student, Hon. Cert.

JOHNSON (W. G.), Wandsworth.
1853. Chemistry, Hon. Cert.
1854. Midwifery, Hon. Cert.
1855. Comparative Anatomy, Prize; Midwifery, Hon. Cert.

JOHNSTON (G. D.).
w 1882-3. 4th Year, Cheselden Medal.

JONES (S.),†Cricklewood, Middlesex.
1851. Matriculation Scholarship, Prize; Descriptive Anatomy, Hon. Cert.; Chemistry, Hon. Cert.; 1st Year Student, Scholarship.
1852. 2nd Year Student, Scholarship; Physiology, Hon. Cert.; Descriptive Anatomy, Prize; Botany, Hon. Cert.
1853. Physiology, Hon. Cert.; Descriptive Anatomy, Hon. Cert.; 3rd Year Student, Scholarship; Materia Medica, Hon. Cert.

JONES (Sydney H.), George Street, Hanover Square.
w 1881–2. 1st Year Student, Entrance Science Scholarship. The Wm. Tite Scholarship.
w 1882–3. 2nd Year Student, ½ Musgrove Scholarship and 1st Coll. Prize combined. Prosector's Prize.

---

* Late Medical Registrar at St. Thomas 's Hospital.

† Member of Council, Royal College of Surgeons; Surgeon to, and Joint Lecturer on Surgery at, St. Thomas's Hospital; late Lecturer on Anatomy and Ophthalmic Surgery.

w 1883–4. 3rd Year Student, 2nd tenure of ½ Musgrove Scholarship, with 1st College Prize.
s 1884. 3rd Year Student, ½ 1st and 2nd Coll. Prizes.
w 1884–5. 4th Year Student, The Cheselden Medal.
Treasurer's Gold Medal.

Jones (A. O.), Islington.
1862. 1st Year Student, Hon. Cert.

Jones (J.), Ilfracombe.
1863. Matriculation Examination — Modern Languages and Modern History, College Prize.

Jones (W. Wansbrough),* Leek.
w 1877-8. 1st Year Student;
1st Entrance Science Scholarship; £60.
The William Tite Scholarship.
w 1877–8. 1st Year Physical Society's Prize;
s 1878. 1st Year Student, 1st Coll. Prize;
w 1878-9. 2nd Year Student, The College Scholarship;
s 1879. 2nd Year Student, 2nd Coll. Prize;
w 1879–80. 3rd Year Student, 2nd tenure of Coll. Scholarship, and 1st Coll. Prize.
w 1880–81. The Mead Medal;
Treasurer's Gold Medal.

Joseph (S. W. J.), St. Leonards.
1873. Physical Society's 2nd Year Prize.

Keele (J. T.), South Lambeth.
1853. Materia Medica, Hon. Cert.;
Midwifery, Hon. Cert.

Kerakoose (J.), East Indies.
1854. Midwifery, Hon. Cert.

Keyworth (J. W.),† Aston, Berks.
1848. Chemistry, Hon. Cert.;
Materia Medica, Prize;
General Proficiency, Hon. Cert.
1849. Physiology, Hon. Cert.;
Midwifery, 3rd Prize;
Medicine, Hon. Cert.;
Physical Society's Essay, Prize.
1850. Physiology, Hon. Cert.;
(Accoucheur)Midwifery,Hon. Cert.;
Ophthalmic Reports, a Governor's Prize;
Essay on Neuralgia, Mr. Newman Smith's Prize.
1851. Comparative Anatomy, Prize;
Clinical Medicine, Prize;
Surgical Reports, Prize;
Midwifery, Prize;
Medical Reports, Prize;
Pathology, Prize;
Physical Society's Essay, Prize.

Kidd (H. C.), Upper Norwood.
w 1881–2. 1st Year Student, 3rd Coll. Prize.
w 1884–5. 4th Year Student, qualified for the Mead Medal.

King (A.), Norwich.
w 1886-7. 1st. Year Student, 1st Coll. Prize.

Knaggs (R. H. E.), Trinidad, W. Indies.
w 1875-6. Prosector's Prize.

Lake (W. W.), Ilford, Essex.
1873. Physical Society's 1st Year's Prize.

* Radcliffe Travelling Fellow, Oxford, 1880. Late Resident Medical Officer, Barnes Convalescent Hospital, Manchester.

† Late Lecturer on Physiology at Sydenham College, Birmingham.

Lake (R.), Dover.
w 1881–2. 2nd Year Student, Prosector's Prize.
w 1883–4. 4th Year Student, qualified for Cheselden Medal.

Langley (R. J.), Tilehurst, Reading.
w 1886-7. 4th Year Student, qualified for Cheselden Medal.

Lankester (A. C.), Leicester.
w 1885–6. 1st Year Student, 1st Coll. Prize.
w 1886–7. 2nd Year Student, ½, 1st and 2nd College Prizes.

Lankester (H.), Poole, Dorset.
1850. 1st Year Student, Scholarship;
Descriptive Anatomy, 1st Prize;
Chemistry, Prize.
1851. Physiology, Prize;
Materia Medica, Prize;
Descriptive Anatomy, Hon. Cert.;
Botany, Hon. Cert.;
Medicine, Prize;
Physical Society's Essay, Prize;
Surgery, Hon. Cert.
1852. 3rd Year Student, Scholarship;
Physiology, Hon. Cert.;
Descriptive Anatomy, Hon. Cert.;
Medical Cases, President's Prize;
Medicine, Prize;
Surgery, Prize;
Surgery and Surgical Anatomy Cheselden Medal;
General Proficiency, Treasurer's Medal.
1853. Surgical Essay, President's Prize.

Lankester (H. H.), Leicester.
w. 1880–81. Entrance Science Scholarship. 1st Year Student 2nd Coll. Prize.
w 1881–2. 2nd Year Student, The College Scholarship Two Years.

Laver (H.)
1855. Midwifery, Hon. Cert.

Laver (A. H.), Rayleigh.
1870. 1st Year Student, 3rd Coll. Prize.
1871. 2nd Year Student, 2nd Coll. Prize.
w 1872. 3rd Year Student, 2nd Coll. Prize, Cheselden Medal.

Lawson (R.), St. Andrews, N.B.
w 1880–81. 1st Entrance Science Scholarship. 1st Year Student, The Wm. Tite Scholarship.
s 1881. 2nd Coll. Prize.
w 1881–2. 2nd Year, 2nd Coll. Prize.
w 1882–3. 3rd Year, 2nd Coll. Prize.
w 1883–4. 4th Year Student, The Cheselden Medal;
Treasurer's Gold Medal.

Laxton (T. L.), Stamford.
w1876-7. 2nd Year Student, Prosector's Prize

Ledger (M.), London.
1845. Dresser's Clinical Surgery, Prize.

Lees (J.),‡ Wolverhampton.
1859. 1st Year Student, Hon. Cert.;
1861. 3rd Year Student, Hon. Cert.;
Physical Society's Prize.

Leeson (T.), Snaith, York.
1847. Medicine, Hon. Cert.;
Surgery, Prize;
Physiology and Anatomy, Hon. Cert.;

‡ Late Demonstrator of Morbid Anatomy at St. Thomas's Hospital.

Descriptive and Surgical Anatomy, Hon. Cert.;
Midwifery, Hon. Cert.
1848. Descriptive and Surgical Anatomy, Hon. Cert.;
Physiology and Anatomy, Hon. Cert.;
Medicine, Hon. Cert.;
Midwifery, Prize.

Le Gros (J.), Jersey.
1844. Medicine, Hon. Cert.;
Midwifery, 1st Prize.
1845. Clinical Medical Reports, Medal;
Medicine, Hon. Cert.;
Dresser's Clinical Surgery, Prize.

Lerew (F. W.), Maida Vale.
s 1876. 1st Year Student, Hon. Cert.

Littlejohn (S. G.), Falmouth, Jamaica.
1865 1st Year Student, Hon. Cert.

Locock (H. S.), Blackheath.
1848. Descriptive and Surgical Anatomy, Hon. Cert.;
Physiology and Anatomy, Hon. Cert.;
Midwifery, Hon. Cert.
1849. Physiology, Hon. Cert.

Longstaff (G. B.), Wandsworth.
w 1873-4. 1st Year Student, 2nd Coll. Prize.
s 1874. 1st Coll. Prize;
Physical Society's 1st Year's Prize;
s 1875. 2nd Year Student, 2nd Coll. Prize.
w 1875-6. 3rd Year Student, 1st Coll. Prize.
w 1876-7. 4th Year Student, Mead Medal.

Lovell (C. P.), Hyde Park.
w 1886–7. 1st Year Student, 1st Entrance Science Scholarship.

Luard (H. B.), Aveley, Essex.
s 1886. 3rd Year Student, 2nd Coll. Prize.
w 1886–7. 4th Year Student, qualified for the Mead Medal.

Lush (W. H.), Devizes.
w 1872. 2nd Year Student, Prosector's Prize.

Lush (J. S.), West Lavington.
s 1873. 1st Year Student, 3rd Coll. Prize.

Macevoy (H. J.), Chantilly.
w 1884–5. 3rd Year Student, ½ 2nd and 3rd College Prizes.
s 1885. 3rd Year Student, ½ 1st and 2nd Coll. Prizes.
w 1885–6. 4th Year Student, Bronze Mead Medal.

Mackenzie (H. W. G.),* Edinburgh.
w 1882–3. 3rd Year Student, 3rd Coll. Prize.
s 1883. 3rd Year Student, 1st Coll. Prize.
w 1883–4. 4th Year Student, The Mead Medal.

Macmurdo (H. H.), New Broad Street.
1847. Chemistry, Hon. Cert.
1849. Midwifery, Hon. Cert.

Manby (W. G.), Barking, Essex.
1851. Descriptive Anatomy, Hon. Cert.

March (H. C.), Newbury.
1858. 1st Year Student, Treasurer's 2nd Prize.
1859. 2nd Year Student, Hon. Cert.
1860. 3rd Year Student, Hon. Cert.

* Resident Assistant Physician to St. Thomas's Hospital.

Martin (C. J.), Dalston.
w 1884–5. 1st Year Student, 2nd Entrance Scholarship.

Mason (M. T.), Newington.
1845. Practical Midwifery, Hon. Cert.

Maybury (A. C.), Frimley, Surrey.
1865. 3rd Year Student, Hon. Cert.

Maybury (W. A.), Frimley, Surrey.
1867. 1st Year Student, 3rd College Prize.

Maybury (H. M.), Frimley, Surrey.
1869. 1st Year Student, 2nd Coll. Prize;
1871. 3rd Year Student, 3rd Coll. Prize.

Maybury (A. V.), Frimley.
1870. 1st Year Student, 2nd Coll. Prize.
1871. 2nd Year Student, 1st Coll. Prize.
w 1872. 3rd Year Student, 1st Coll. Prize;
Treasurer's Gold Medal.

Maynard (J. C. M.)
1855. Midwifery, Hon. Cert.

Meadows (H.), Leicester.
1867. 1st Year Student, The William Tite Scholarship;
Phys. Soc. 1st Year's Prize.
1868. 2nd Year, Tite Scholarship;
Phys. Soc. 2nd Year's Prize.

Miller (B.), London.
1845. Midwifery, Hon. Cert.;
Practical Midwifery, Prize;
Clinical Medicine, Prize.

Milne (C. W.), Aberdeen.
1865. 1st Year Student, Hon. Cert.

Mitchell (J.), Leicester.
1866. 1st Year Student, 2nd Coll. Prize;
Phys. Society's 1st Year's Prize.
1867. 2nd Year Student, 2nd Coll. Prize.
1868. 3rd Year Student, 2nd Coll. Prize.

Money (F. J.), Offham, Kent.
1849. Descriptive Anatomy, 2nd Prize;
Chemistry, Prize;
Materia Medica, 1st Prize;
Matriculation Scholarship, Prize;
1st Year Student Scholarship.
1850. Physiology, Prize;
Comparative Anatomy, Prize;
Descriptive Anatomy, Prize;
Medicine, Prize;
Surgery, Hon. Cert.
1851. Descriptive Anatomy, Hon. Cert.;
Midwifery, Prize;
Medicine, Prize;
Physical Society's Essay, Prize;
Surgery, Prize;
Surgery and Surgical Anatomy, Cheselden Medal;
General Proficiency, Treasurer's Gold Medal.

Montague (A. J. H.), Wandsworth Road.
w 1884–5. 4th Year Student, qualified for the Mead Medal.

Moreton (J. E.), Marton, Cheshire.
1850. 1st Year Student, Scholarship;
Descriptive Anatomy, Hon. Cert.;
Chemistry, Hon. Cert.
1851. Materia Medica, Hon. Cert.;
Botany, Hon. Cert.;
1852. Physiology, Prize;
Descriptive Anatomy, Prize;
Physical Society's Essay, Prize;
Medicine, Prize;
Surgery, Prize;
2nd Year Student, Scholarship.

1853. 3rd Year Student, Scholarship;
Physiology, Prize;
Clinical Medicine, Pres. Prize;
Clinical Medicine, Treas. Prize;
Clinical Medicine, Mr. N. Smith's Prize;
Descriptive Anatomy, Hon. Cert.;
Midwifery, Hon. Cert.;
Ophthalmic Surgery, Prize;
Medicine, Prize;
Forensic Medicine, Hon. Cert.;
Surgery, Hon. Cert.;
Surgery and Surgical Anatomy, Cheselden Medal;
Gen. Proficiency, Treas. Medal.
1854. Clinical Med., Dr. Roots' Prize;
Pathology, Hon. Cert.

MORETON (T.), Marton, Cheshire.
1857. 1st Year Student, Treasurer's 2nd Prize;
Matriculation Examination, Classics and Mathematics, Prize.
1858. Clinical Medicine, Prize.
1859. 3rd Year Student, Hon. Cert.;
Clinical Medicine, Hon. Cert.

MORGAN (S.), London.
1852. Descriptive Anatomy, Hon. Cert.
1853. Midwifery, Hon. Cert.
1854. Midwifery, Hon. Cert.;
Forensic Medicine, 2nd Prize.

MORRIS (C. K.), Spalding, Lincolnshire.
w 1875. Prosector's Prize.

MORTON (J.), Holbeach, Lincoln.
1861. 1st Year Student, Hon. Cert.
1862. 2nd Year Student, Hon. Cert.
1863. 3rd Year Student, Hon. Cert.

MOXON (H. M.), Brigsham.
1871. Prosector's Prize.

MUSSON (W. E.), Birkholme, Lincoln.
1850. Matriculation Scholarship, Prize;
Descriptive Anatomy, Hon. Cert.
1851. Physiology, Hon. Cert.;
Comparative Anatomy, Hon. Cert.;
Medicine, Hon. Cert.

NEWBY (C. H.),* London.
1870. Prosector's Prize.

NEWSHOLME (A.), Bradford.
w 1875-6. 1st Year Student, 1st Coll. Prize.
w 1876-7. 2nd Year Student, 1st College Scholarship.
s 1877. Ditto 1st Coll. Prize.
w 1877-8. 3rd Year Student, The "College Scholarship," 1st Coll. Prize.

NEWTH (A. H.), Kennington, Surrey.
1865. 1st Year Student, Hon. Cert.

NICHOL (F. E.), Roupell Park.
w 1884–5. 4th Year Student, qualified for the Cheselden Medal.

NICHOL (R.), Camberwell.
1844. Chemistry, 1st Prize;
Materia Medica, Prize. [Cert.;
1845. Physiology and Anatomy, Hon.
Botany, Prize;
Comparative Anatomy, Prize.

* Late Surgical Registrar at St. Thomas's Hospital.

NICHOLSON (F. W.), Putney.
s 1877. 1st Year Student, 3rd Coll. Prize.
w 1877-8. 2nd Year Student, Prosector's Prize.

NICHOLSON (J. F.),† Brigg, Lincoln.
w 1873. 1st Year Student, 1st Coll. Prize.
s 1873. 1st Year Student, 1st Coll. Prize.
w 1874. 2nd Year Student, 1st Coll. Prize.
s 1874. Ditto 1st Coll. Prize.
w 1875. 3rd Year Student, 1st Coll. Prize;
Cheselden Medal;
Mead Medal;
Treasurer's Gold Medal.

O'CALLAGHAN (C.), Killarney.
1847. Chemistry, Hon. Cert.;
Materia Medica, Prize.
1848. Medical Reports, President's Prize;
Physiology and Anat., Hon. Cert.
Midwifery, Hon. Cert.;
Practical Midwifery, Prize;
Forensic Medicine, Prize;
Physical Society's Essay, Prize.
1849. Physical Society's Essay, Treasurer's Prize;
Resident Accoucheur's Report, Prize.

ORANGE (W.),‡ Torquay.
1854. Midwifery, Hon. Cert.
1856. Midwifery, Hon. Cert.

ORD (G. R.), Brixton.
1858. Midwifery, Hon. Cert.

ORD (W. M.),§ Brixton.
1853. Matriculation Examination, Scholarship;
1st Year Student, Scholarship;
Descriptive Anatomy, Prize;
Chemistry, Prize.
1854. 2nd Year Student, Scholarship;
Medicine, Prize;
Materia Medica, Prize;
Descriptive Anatomy, Hon. Cert.;
Midwifery, Hon. Cert.;
Surgery, Hon. Cert.;
Physiology, Prize.
1855. 3rd Year Student, Scholarship;
Surgery and Surgical Anatomy, Cheselden Medal;
Forensic Medicine, Prize;
Pathology, Prize;
Practical Chemistry, Prize;
Medicine, Hon. Cert.;
Descriptive Anatomy, Hon. Cert.;
Physiology, Prize;
General Proficiency, Treasurer's Medal.
1856. Registrar, Prize.

ORD (W. W.), Brook Street.
s 1884. 1st Year Student, 2nd Coll. Prize.
w 1884–5. 2nd Year Student, ½ 2nd College Prize.
w 1886-7. 4th Year Student, Mead Medal.

OSBORN (S.),‖ Brixton.
1870. Physical Society's 2nd Year's Prize.

† Physician to the Hull General Infirmary.

‡ Late Resident Medical Superintendent at Broadmoor Asylum.

§ Physician to, and Joint Lecturer on Medicine at, St. Thomas's Hospital. Late Lecturer on Comparative Anatomy, Physiology, and Practical Physiology.

‖ Assistant Surgeon to the Hospital for Women, Soho Square. Late Surgical Registrar at St. Thomas's Hospital.

OUGHTON (T.), London.
1858. Clinical Medical Assistant, 1st Prize.

OZANNE (C. H.), Guernsey.
1844. Descriptive and Surgical Anatomy, Prize.

OZANNE (J.), Guernsey.
1843. Physiology and Anatomy, Cheselden Medal;
Comparative Anatomy, Hon. Cert.
1844. Medicine, Prize;
Midwifery, 2nd Prize;
Surgery, Hon. Cert.;
Physical Society's Essay, Prize;
Clinical Surgical Reports, Silver Medal.

PAGE (W. H.), Cheltenham.
s 1872. 1st Year Student, Hon. Cert.
w 1873. 3rd Coll. Prize.

PALMER (M. H. C.), Newbury, Berks.
1870. Physical Society's 2nd Year's Prize.
1872. Physical Society's 3rd Year's Prize.

PARSONS (F. G.), Lee, Kent.
w 1882–3. 2nd Year, Prosector's Prize.
w 1886–7. 6th Year, Grainger Testimonial Prize.

PEARCE (G.), Salisbury.
1860. 1st Year Student, 2nd Coll. Prize.
1861. 2nd Year Student, 2nd Coll. Prize.

PEEK (F. H.), Diss, Norfolk.
s 1872. 1st Year Student, 1st Coll. Prize.
w 1873. The William Tite Scholarship.
w 1874. 2nd Year Wm. Tite Scholarship.

PENBERTHY (J.), Redruth.
1854. 1st Year Student, Scholarship;
Descriptive Anatomy, Prize;
Chemistry, Hon. Cert.
1855. 2nd Year Student, Scholarship;
Midwifery, Hon. Cert.;
Botany, Prize;
Descriptive Anatomy, Hon. Cert.

PERN (A.), Winchester, Hampshire.
1865. 1st Year Student, Hon. Cert.

PHILLIPS (G. G.), Newcastle Emlyn.
1859. 2nd Year Student, Hon. Cert.
1860. 3rd Year Student, 3rd Coll. Prize.

PICKFORD (J. K.), Brixton.
w 1872. 1st Year Student, 3rd Coll. Prize.
s 1872. Hon. Cert.

PIETERSEN (J.), Cape of Good Hope.
w 1883–4. Solly Medal and Prize.

PIKE (W. R.), Leicester.
1868. Physical Society's 1st Year's Prize.

PIKE (J. B.), Leicester.
w 1872. 2nd Year Student, Hon. Cert.
w 1873. 3rd Year Student, Hon. Cert.

PLOWMAN (R.), Bridgewater, Somst.
1862. 1st Year Student, Hon. Cert.
1863. 2nd Year Student, Hon. Cert.
1865. 3rd Year Student, Hon. Cert.

POLLARD (F.), Taunton, Somerset.
1865. 1st Year Student, 2nd Coll. Prize.
1866. 2nd Year Student, 2nd Coll. Prize;
Physical Society's 2nd Year's Prize.
1868. 3rd Year Student, 1st Coll. Prize;
Physical Society's 3rd Year's Prize;
Cheselden Medal

POTTER (H. P.),* Denmark Hill.
w 1872. 1st Year Student, Hon. Cert.
s 1872. 3rd College Prize.

* Late Surgical Registrar to St. Thomas's Hospital.

w 1873. 2nd Year Student, 2nd Coll. Prize;
Prosector's Prize.
w 1874. 3rd Year Student, 1st Coll. Prize;
Cheselden Medal;
Hon. Cert. for Gen. Proficiency.
1875. Grainger Testimonial Prize.

POYNDER (G. F.), Clapham.
1872. Phys. Society's 1st Year's Prize.
1874. Phys. Society's 3rd Year's Prize.

PURKISS (A.), Kennington.
w 1875-6. 1st Year Student, Hon. Cert.
s 1876. Hon. Cert.

PURVIS (J. P.), Blackheath.
1861. 1st Year's Student, Hon. Cert.;
Matriculation Examination, Hon. Cert.
1862. 2nd Year Student, Hon. Cert.
1863. 3rd Year Student, Hon. Cert.

RAINBOW (F.), Lower Norwood.
1864. 1st Year Student, Hon. Cert.
1865. 2nd Year Student, 3rd Coll. Prize.
1866. 3rd Year Student, 2nd Coll. Prize.

RAYNER (H.),† Hythe, Kent.
1862. Matriculation Examination—Physics and Natural History, Hon. Cert.;
1st Year Student, 1st Coll. Prize.
1863. 2nd Year Student, 1st Coll. Prize.
1864. 3rd Year Student, Hon. Cert.;
Hon. Cert. for the Cheselden Medal.

RELTON (B.), Ealing.
1880. 2nd Entrance Science Scholarship.

RICHARDSON (C. S.), Greenwich.
1851. Surgery, Hon. Cert.
1852. Midwifery, Prize.

RICHARDSON (L.), Greenwich.
1848. General Pathology, Prize.

RIDGE (J. J.), Horsleydown.
1864. 1st Year Student, The William Tite Scholarship.
1865. 2nd Year of Tite's Scholarship;
Physical Society's 2nd Year's Prize;
Prosector's Prize.
1866. The Grainger Testimonial Prize.
1868. 3rd Year Tite Scholarship;
Hon. Cert. for Proficiency in Surgery and Surgical Anatomy
Treasurer's Gold Medal.

ROBERTS (E. A.), Birmingham.
w 1884–5. 1st Year Student, ½ 1st and 2nd College Prizes.

ROBINSON (H. B.), Lower Norwood.
s 1881. 2nd Year Student, 1st Coll. Prize.

ROE (A. D.), Eccles.
w. 1880–81. 3rd Year Student, 2nd Coll. Prize.

ROGERS (R. S.), Greenwich.
1843. Midwifery, First Prize;
Clinical Medicine, Hon. Cert.

ROSSITER (G. F.), Taunton.
1871. 1st Year Student, 1st Coll. Prize.
w 1872. 2nd Year Student, 2nd Coll. Prize.
s 1872. 1st Coll. Prize.
w 1873. 3rd Year Student, 3rd Coll. Prize;
Cheselden Medal;
Treasurer's Gold Medal.

† Medical Superintendent Hanwell Asylum, and Lecturer on Psychology at St. Thomas's Hospital. Late Lecturer on Psychology at Middlesex Hospital.

ROUSE (R. E.), Woodbridge.
s 1880 2nd Year Student, 3rd College Prize.

RUDALL (J. T.), Crediton, Devon.
1853. Physiology, Hon. Cert.;
Midwifery, Hon. Cert.;
Medicine, Hon. Cert.;
Surgery, Hon. Cert.

SANDFORD (H. C.), Brixton.
w 1872. 1st Year Student, 1st Coll. Prize.
s 1872. 2nd College Prize.
w 1873. 2nd Year Student, 1st Coll. Prize.
s 1873. 3rd College Prize.
w 1874. 3rd Year Student, 2nd Coll. Prize;
Treasurer's Gold Medal.

SANEYOSHI (Y.), Tokio, Japan.
w 1881–2. 3rd Year Student, 1st. Coll. Prize.

SANKEY (G. G.), Ashford, Kent.
1864. 3rd Year Student, 3rd Coll. Prize.

SAUNDERS (G. M. C.), London.
1843. Midwifery, Hon. Cert.

SAUNDERS (H. W.), London.
1867. 1st Year Student, 2nd Coll. Prize.
1868. Prosector's Prize.
1869. 3rd Year Student, 1st. Coll. Prize;
Treasurer's Gold Medal;
Physical Society's 3rd Year's Prize.

SAUNDERS (W. S.), Camden Town.
1844. Midwifery, Hon. Cert.
1845. Medicine, Prize;
Midwifery, Prize;
Clinical Medicine, Prize.

SAVILL (T. D.), Brixton.
w 1875-6. 2nd Entrance Science Scholarship;
1st Year Student, The William Tite Scholarship.
s 1876. 3rd College Prize.
w 1876-7. 2nd Year Student, Hon. Cert.
s 1877. 2nd Year Student, 2nd Coll. Prize.

SCOTT (R. J.), Omagh, Tyrone.
1861. 1st Year Student, Hon. Cert.

SCUTT (T.), Bere Regis.
w 1882–3. 3rd Year Student, 1st Coll. Prize.

SEDGWICK (J.), Boroughbridge.
1854. Descriptive Anatomy, Hon. Cert.
1855. Surgery, Hon. Cert.;
Midwifery, Hon. Cert.

SEDGWICK (L. W.), Boroughbridge.
1848. Descriptive and Surgical Anatomy, Prize;
Physiology and Anatomy, Prize;
Medicine, Hon. Cert.;
Midwifery, Prize;
Surgery, Prize;
1849. Physiology, 1st Prize;
Midwifery, 1st Prize;
Surgery, Prize;
Medicine, 1st Prize;
General Proficiency, Treasurer's Medal.

SERGEANT (E.), Preston.
1870. 3rd Year Student, 3rd Coll. Prize;
Cheselden Medal.

SEWELL (E.), Little Oakley.
1848. Physiology and Anatomy, Hon. Cert.

SHARKEY (S. J.),* Galway.
1874. Physical Society's 2nd Year's Prize.

SHAW (J.), Clapham Road.
w 1874-5. 1st Year Student, 1st Coll. Prize.
s 1875. 1st Coll. Prize.
w 1875-6. 2nd Year Student, 1st Coll. Prize.

SHEA (H. G.), London.
1860. 1st Year Student, Hon. Cert.
1861. 2nd Year Student, Hon. Cert.
1862. 3rd Year Student, 2nd Coll. Prize.

SHEA (J.), London.
1855. Midwifery, Hon. Cert.
1859. Midwifery, Hon. Cert.

SHEPPARD (C. E.),† Kensington.
w 1873-4. 1st Year Student, 1st Coll. Prize.
s 1874. 1st Year Student, 2nd Coll. Prize.
w 1874-5. 2nd Year Student, 1st Coll. Prize.
s 1875. 1st Coll. Prize.
w 1875-6. 3rd Year Student, 2nd Coll. Prize;
Physical Society's 2nd Year's Prize.
w 1876 7. 4th Year Student, the Treasurer's Gold Medal.
w 1877-8. Solly Medal and Prize, £20.
Paper published in Hosp. Reports, Vol. VIII.

SHEPPARD (W. J.), Kensington.
w. 1880–81. 3rd Year Student, 3rd Coll. Prize.
w 1881-2. The Treasurer's Gold Medal.

SHERRINGTON (C. S.),‡ Caius Coll., Cambs.
w 1882–3. 6th Year, Grainger Testimonial Prize.

SHIRTLIFF (E. D.), Kingston-on-Thames.
w 1882–3. 2nd Entrance Science Scholarship.

SIDDALL (J. B.),§ Morton, Derby.
1862. 1st Year Student, Hon. Cert.
1863. 2nd Year Student, Hon. Cert.
1864. 3rd Year Student, Hon. Cert.;
Hon. Cert. for the Cheselden Medal.

SIMMONS (H. B. M.), West Indies.
1849. Descriptive Anatomy, Hon. Cert.

SIMON (M. F.), Blackheath.
1866. 1st Year Student, 1st Coll. Prize.
1869. 3rd Year Student, 3rd Coll. Prize;
Prosector's Prize;
Prize and Hon. Cert. for Surgery and Surgical Anatomy.

SIMS (G. S.), Derby.
s 1881. 1st Year Student, 3rd Coll. Prize.

SISSONS (W. H.), Hull.
1858. Matriculation Examination—Physics, &c., Prize.
1859. 2nd Year Student, Hon. Cert.;
Clinical Medicine, Prize;
Physical Society's Essay, Prize.
1860. 3rd Year Student, 2nd Coll. Prize.
Physical Society's Prize.

SKINNER (W.), Stockton-on-Tees.
1848. Botany, Hon. Cert.;
Materia Medica, Hon. Cert.

SKIPPER (J.), Dalston, London.
1852. Midwifery, Hon. Cert.

SKIPTON (S. S.), East Indies.
1851. Midwifery, Hon. Cert.

SLATER (J. S.), Bath.
1868. 1st Year Student, 1st Coll. Prize.

---

* Assist.-Physician to, and Joint Lecturer on Pathological Anatomy and Demonstrator of Morbid Anatomy at, St. Thomas's Hospital.

† Late Resident Assistant-Physician and Medical Registrar to St Thomas's Hospital.

‡ Lecturer on Physiology at St. Thomas's Hospital.

§ Late Physician to H.B.M. Legation, Japan.

1869. Physical Society's 2nd Year's Prize.
1870. 3rd Year Student, 2nd Coll. Prize; Treasurer's Gold Medal.

SLAUGHTER (C. H.), Farningham
1855. Midwifery, Hon. Cert.

SLAUGHTER (G. M.), Farningham.
1854. Midwifery, Hon. Cert.

SMITH (H. U.), Reading.
w 1876-7. 4th Year Student, Cheselden Medal.

SMITH (R. P.),* Belvedere.
s 1876. 2nd Year Student, 2nd College Prize.

SMYTH (H. J.), Brondesbury.
w 1882-3. 1st Year Student, 3rd Coll. Prize.
s 1883. 1st Year Student, 1st Coll. Prize.
w 1883-4. 2nd Year Student, 1st Coll. Prize.
s 1884. 2nd Year Student, 2nd Coll. Prize.
w 1885-6. 4th Year Student, Treasurer's Gold Medal.

SNAITH (F.), Boston, Lincolnshire.
1864. 3rd Year Student, Hon. Cert.

SOLLY (E.), Congleton.
w 1883-4. 2nd Year Student, 2nd Coll. Prize.
w 1885-6. Solly Medal and Prize.

SOLLY (R. V.), Congleton.
w 1884-5. 2nd Year Student ½ 2nd College Prize.
w 1886-7. 4th Year Student, qualified for Cheselden Medal.

SPRAKELING (R. J.), Canterbury.
1855. Midwifery, Hon. Cert.
1856. 2nd Year Student, Hon. Cert.; Clinical Medicine, Prize.

STABB (A. F.), Ilfracombe.
w 1885-6. 1st Year Student, 1st Entrance Science Scholarship; The William Tite Scholarship.
s 1886. 1st Year Student, 2nd College Prize.
w 1886-7. 2nd Year Student, The Musgrove Scholarship

STABB (E. C.), Ilfracombe.
w 1883-4. 2nd Year Student, Prosector's Prize.
s 1884. 2nd Year Student, 1st Coll. Prize.
w 1885-6. 4th Year Student, qualified for Cheselden Medal.

STADDON (J. H.), London.
1858. Clinical Medicine, Prize.
1859. Clinical Medicine, Prize.

STEPHENS (J. N.), Walton-on-Thames.
w 1876-7. Physical Society's 1st Year's Prize.

STEPHENS (S. Sanders), Taunton.
1863. Physical Society's 2nd Year's Prize.

STODDART (F. W.), Bristol.
w 1877-8. 1st Year Student, 1st Coll. Prize.

STONE (W.H.),† London.
1854 Matriculation Examination—Scholarship; 1st Year Student, Scholarship; Descriptive Anatomy, Hon. Cert.; Botany, Prize; Chemistry, Prize.
1855. 2nd Year Student, Scholarship; Forensic Medicine, Prize; Physical Society's Essay, Prize; Practical Chemistry, Prize; Medicine, Prize; Descriptive Anatomy, Hon. Cert.; Materia Medica, Prize; Physiology, Prize; [Prize. Clinical Medicine, Mr. N. Smith's
1856. Clinical Medical Prize; [Medal. General Proficiency, Treasurer's

SUMMERHAYES (H.), Crewkerne, Somersetshire.
1861. Matriculation Examination—Classics and Mathematics, President's Prize; [Prize; Modern Languages, &c., College Physics and Natural History, College Prize; The William Tite Scholarship.
1862. 2nd Year Tite's Scholarship.
1863. 3rd Year Tite's Scholarship; Treasurer's Gold Medal.

SUMMERHAYES (W.), Crewkerne, Somersetshire.
1856. Matriculation Examination—Classics and Mathematics, Hon. Cert.; Matriculation Examination—Modern Languages, Prize.

SUTCLIFF (E.), Camberwell.
1861. 1st Year, 3rd College Prize; Matriculation Examination—Hon. Cert.
1863. 3rd Year Student, 3rd Coll. Prize.

SUTCLIFFE (J.), Ashton-under-Lyne.
1869. Prosector's Prize.

SWALLOW (J. D.), Reading.
1861. 2nd Year Student, Hon. Cert.

SWEETING (R. B.), Reading.
1853. 1st Year Student, Scholarship; Descriptive Anatomy, Hon. Cert.; Chemistry, Hon. Cert.
1854. 2nd Year Student, Scholarship; Midwifery, Prize.
1855. 3rd Year Student, Scholarship; Midwifery, Hon. Cert.; [Prize. Clinical Medicine, Treasurer's

SWEETING (T.), Reading.
1855. Midwifery, Hon. Cert.

TAKAKI (Kanehiro), Kasumigaseki, Tokio, Japan.
w 1875-6. 1st Year Student, 3rd Coll. Prize.
s 1876. 2nd College Prize.
w 1876-7. 2nd Yr. Student, 1st Coll. Prize.
s 1877. 2nd Year Student, 3rd Coll. Prize.
w 1877-8. 3rd Year Student, 2nd Coll. Prize.
w 1878-9. 4th Year Student; "The Cheselden Medal;" The Treasurer's Gold Medal.

TALBOT (G. T.), Kidderminster.
1848. Medical Reports, Dr. Roots' Prize.

TAYLOR (C. M.), Wrawby, Brigg.
1871. 1st Year Student, 2nd Coll. Prize.
w 1872. 2nd Year Student, 1st Coll. Prize.
w 1873. 3rd Year Student, 1st Coll. Prize; Surgery and Surgical Anatomy, Hon. Cert.

TAYLOR (S.),‡ Burton-on-Trent.
w 1872. 3rd Year Student, Hon. Cert.

* Assistant Medical Officer, Bethlem Royal Hospital for Lunatics. Late Resident Assistant-Physician to St. Thomas's Hospital.

† Examiner in Medicine, Royal College of Physicians. Physician to, and Lecturer on Physics and Natural Philosophy, and on Materia Medica at St. Thomas's Hospital; Late Assistant-Physician to the Hospital for Consumption, Brompton.

‡ Physician North London Hospital for Consumption; Demonstrator of Anatomy, St. Thomas's Hospital.

TAYLOR (S. J.), Grantham.
s 1875. 1st Year Student, Hon. Cert.
w 1875–6. 2nd Year Student, The Musgrove Scholarship.
w 1876–7. 3rd Year Student, 2nd Year Musgrove Scholarship, and 1st College Prize.
w 1877–8. The Mead Medal;
The Treasurer's Gold Medal.

TEANBY (F. W.), Turnham Green.
1851. Practical Midwifery, Prize.
1852. Clinical Medicine, Junior Prize;
Midwifery, Hon. Cert.

THOMAS (L. M.), Camberwell.
1866. 1st Year Student, 3rd Coll. Prize.
1867. 2nd Year Student, 3rd Coll. Prize.
1869. 3rd Year Student, 2nd Coll. Prize;
Cheselden Medal.

THOMAS (W. L.), Neath, Glamorgan.
1845. Chemistry, Prize;
Materia Medica, Prize.
1847. Medicine, Hon. Cert.;
Physiology and Anatomy, Prize.
Physical Society's Essay, Prize.

THOMPSON (F. H.), Tenbury.
1870. Prosector's Prize.

THUDICHUM (G. D.), Kensington.
w 1878–9. Physical Society's 2nd Year's Prize.

TIMOTHY (P. V.), London.
1851. Practical Midwifery, Prize;
Midwifery, Hon. Cert.

TODD (A. J. M.), Gravesend.
w 1863. 1st Year Student, 2nd Coll. Prize.
w 1864. Prosector's Prize.

TOLLER (S. G.), Notting Hill.
w 1885–6. 1st Year Student, 2nd Entrance Science Scholarship.
s 1886. 1st Year Student, 1st College Prize.
w 1886–7. 2nd Year Student, ½ 1st and 2nd College Prizes.

TOMSON (K.), Luton, Beds.
1842. Materia Medica, Prize.
1843. Medicine, Prize;
Clinical Medicine, Hon. Cert.

TOMSON (W. B.), Luton, Beds.
w 1879–80. 1st Year Student, 2nd Coll. Prize.
s 1880. 1st Year Student, 2nd Coll. Prize.
w 1880–81. 2nd Year Student, The Musgrove Scholarship, Prosector's Prize.
w 1881–2, 3rd Year Student, 2nd Coll. Prize;
2nd Tenure of Musgrove Scholarship.
s 1882. 2nd Coll. Prize.
w 1882–3. Treasurer's Gold Medal.

TONKING (J. H.), Camborne.
w 1884–5. 3rd Year Student, ½ 2nd and 3rd College Prizes.
w 1885–6. 4th Year Student, The Cheselden Medal.

TOTSUKA (K.), Tokio, Japan.
s 1882. 1st Year Student, 2nd Coll. Prize.
w 1882–3. 2nd Year Student, ½ Musgrove Scholarship and 1st Coll. Prize combined.
w 1883–4. 3rd Year Student, 2nd tenure of ½ Musgrove Scholarship, with 3rd College Prize.

TREND (H. G.), Bridgewater.
1853. Practical Midwifery, Prize;
Midwifery, Hon. Cert.
1854. Midwifery, Hon. Cert.;
Clinical Medicine, Treasurer's Prize.

TREVES (W. K.), Dorchester.
1863. Matriculation Examination—
Physics and Natural History, Hon. Cert.; and
Modern Languages and Modern History, College Prize and Hon. Cert.;
1st Year Student, Hon. Cert.
1865. 3rd Year Student, 2nd Coll. Prize;
Prosector's Prize.

TURNEY (H. G.), Camberwell Grove.
w 1885–6. 2nd Year Student, 2nd Coll. Prize.
s 1886. 2nd Year Student, 2nd College Prize.
w 1886–7. 3rd Year Student, 3rd Coll. Prize.

TYRRELL (W.), Richmond.
1851. Descriptive Anatomy, Hon. Cert.
1852. Medicine, Hon. Cert.;
Surgery, Hon. Cert.
1853. Forensic Medicine, Hon. Cert.;
Ophthalmic Essay, Mr. Dixon's Prize.
1854. Surgical Reports, President's Prize

VARDY (J. L.), London.
1854. Midwifery, Hon. Cert.
1855. Practical Midwifery, Prize.

VERDON (H. W.), Eccles.
2nd Year Student, Hon. Cert.

WAGSTAFFE (W. W.),* Kennington.
1862. Matriculation Examination—Classics and Mathematics, President's Prize.
Physics and Natural History, College Prize; Prize;
Modern Languages, &c., College 1st Year Student, Treasurer's Prize;
1863. 2nd Year Student, 1st. Coll. Prize.
1864. 3rd Year Student, 1st Coll. Prize;
Physical Society's 3rd Year's Prize;
Cheselden Medal;
Treasurer's Gold Medal.

WALKER (R.), Kendal.
1854. Descriptive Anatomy, Hon. Cert.;
Midwifery, Hon. Cert.
1855. Midwifery, Hon. Cert.

WALLER (A.), Islington.
1864. 1st Year Student, 1st Coll. Prize.
1865. 2nd Year Student, 1st Coll. Prize.
1866. 3rd Year Student, 1st Coll. Prize;
Physical Society's 3rd Year's Prize;
Treasurer's Gold Medal.

WALLER (C. B.), London.
1860. 2nd Year Student, Hon. Cert.

WARD (F. H.),† Scarboro'.
1863. 1st Year Student, Treas. Prize.
1864. 2nd Year Student, 1st Coll. Prize;
Physical Soc. 2nd Year's Prize.
1865. 3rd Year Student, 1st Coll. Prize;
Physical Soc. 3rd Year's Prize;
Cheselden Medal;
Treasurer's Gold Medal.

WATSON (F.), Nottingham.
1859. 1st Year Student, Hon. Cert.;
Matriculation Examination—Physics, &c., Prize.

---

* Late Assistant Surgeon to, and Joint Lecturer on Anatomy at, St. Thomas's Hospital. Late Member of the Board of Examiners, Royal College of Surgeons.

† Assistant Medical Officer, Wandsworth Lunatic Asylum.

WAY (F. W.), Fratton, Portsmouth.
1853. Descriptive Anatomy, Hon. Cert.; Chemistry, Hon. Cert.;
1854. Midwifery, Hon. Cert.; Surgery, Hon. Cert.

WAY (J. P.), Portsmouth.
1861. 1st Year, Hon. Cert.

WEBBER (W. W.), Crewkerne.
w 1876-7. 1st Year Student, 3rd Coll. Prize.

WEBSTER (E.), Lee.
w 1883-4. 1st Year Student, 1st Coll. Prize.
s 1885. 2nd Year Student, ½ 2nd Coll, Prize.

WEBSTER (H.), Dulwich.
1851. Matriculation Sch., Hon. Cert.; Descriptive Anatomy, Hon. Cert.
1852. Botany, Hon. Cert.
1853. Midwifery, Hon. Cert.

WEEKES (F. H.), Southampton.
w 1873-4. 1st Year Student, 3rd Coll. Prize.
s 1874. 3rd Coll. Prize.
w 1874-5. 2nd Year Student, 2nd Coll. Prize.
s 1875. 3rd Coll. Prize.
w 1875-6. 3rd Year Student, 3rd Coll. Prize.

WELLS (A. E.), Brixton.
w 1877-8. 1st Year Student, 2nd Entrance Science Scholarship.

WEST (J. F.)*
1853. Midwifery, Hon. Cert.
1854. Forensic Medicine, Hon. Cert.; Pathology, Hon. Cert.
1855. Ophthalmic Reports, Prize.

WHEATON (F. D. W.), Honiton.
1845. Practical Midwifery, Hon. Cert.

WHEATON (S. W.), Battersea Park.
s 1885. 3rd Year Student, ½ 1st and 2nd College Prizes.
w 1885-6. 4th Year Student, The Mead Medal.

WHITEHEAD (E. T.), Battersea.
w 1886-7. 1st Year Student, 2nd Coll. Prize.

WHITEHEAD (J.), Preston.
1861. 1st Year, Hon. Cert.
1862. 2nd Year Student, 3rd Coll. Prize.
1863. 3rd Year Student, 2nd Coll. Prize.

WILES (J.), Hitchin, Herts.
1850. Physiology, Hon. Cert.
1851. (Accoucheur) Midwifery, Prize.

WILLIAMS (H.), Longley, near Gloucester.
1868. 1st Year Student, 2nd Coll. Prize.
1869. 2nd Year Student, 3rd Coll. Prize.

WILLIAMS (J.), Westerleigh Bristol.
1855. 1st Year Student, Scholarship; Midwifery, Prize; Botany. Prize; Chemistry, Hon. Cert.; Descriptive Anatomy, Prize; Materia Medica, Hon. Cert.
1856. 2nd Year Student, Trea's 1st Prize.
1857. 3rd Year Student, Hon. Cert. Gen. Proficiency, Treasurer's Medal.

* Late Surgeon to Queen's Hospital, and Professor of Clinical Surgery at Queen's College, Birmingham.

WILLIAMS (J.), Doncaster.
1858. 1st Year Student, Hon. Cert.
1859. 2nd Year Student, Hon. Cert.; Clinical Medicine, Prize.
1860. 3rd Year Student, Hon. Cert.

WILLIAMS (P. H.), Monmouth.
s 1872. 1st Year Student, Hon. Cert.

WILLIAMS (P. M. G.), Newcastle Emlyn.
1864. Practical Midwifery, Prize.

WILLIAMS (R. M.) Beaumaris.
1880. 1st Entrance Science Scholarship.

WILLIAMS (W. R.),† Nottingham.
1856. Matriculation Examination in Classics, Mathematics, Hon. Cert.

WILLIAMSON (R. J.), Ripon.
w 1876-7. 1st Entrance Sc. Scholarship.

WITHERBY (W. H.), Croydon.
1858. Matriculation Examination in Modern Languages, Prize.

WOAKES (E.), Luton, Beds.
1856. 1st Year Student, Hon. Cert.
1857. 2nd Year Student, 2nd Prize; Clinical Medical Prize.
1858. Essay on Neuralgia, Mr. N. Smith's Prize; Surgery and Surgical Anatomy, Cheselden Medal.

WOOD (G. J.), London.
1863. Descriptive Anatomy, Hon. Cert.

WOOD (R. H.), Loughborough, Leicester.
1854. Descriptive Anatomy, Hon. Cert.
1855. Surgery, Hon. Cert.; Midwifery, Prize; Medicine, Hon. Cert.; Descriptive Anatomy, Prize; Physiology, Hon. Cert.
1856. Physical Society's Essay, Prize.

WOODHOUSE (T. J.), London.
1855. Chemistry, Hon. Cert.; Materia Medica, Hon. Cert.

WOODMAN (W. E.), Camberwell.
s 1875. 1st Year Student, 2nd Coll. Prize.

WOTTON (H. G.)
1855. Midwifery, Hon. Cert.
1856. Midwifery, Hon. Cert.

WRENCH (E. M.), Cornhill.
1851. Descriptive Anatomy, Hon. Cert.; Physical Society's Essay, Treasurer's 1st Year's Prize;
1852. Physiology, Hon. Cert.

WRIGHT (E. H.), Jersey.
s 1885. 2nd Year Student, ½ 2nd Coll Prize.

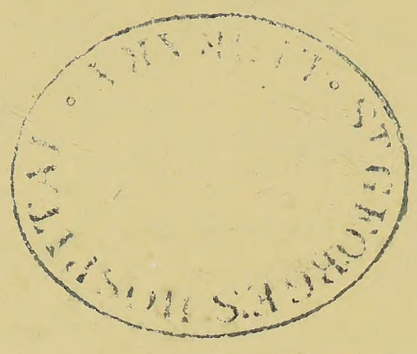
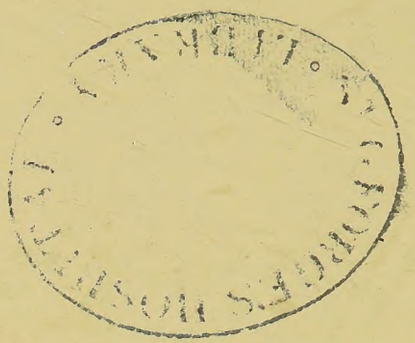
WYMAN (W. S.), Kettering, Northampton.
1852. Matriculation Examination Scholarship.

† One of H. M. Commissioners in Lunacy; late Resident Physician to Bethlehem Royal Hospital; late Lecturer on Mental Diseases at St. Thomas's Hospital.

All old Students of St. Thomas's Hospital are requested to send their *present* addresses to The Medical Secretary, *St. Thomas's Hospital, Albert Embankment, Westminster Bridge, S.E.*

LONDON: PRINTED BY WM. CLOWES AND SONS, LIMITED, STAMFORD STREET AND CHARING CROSS.

WELLCOME LIBRARY INSTITUTE


ARNOLD ARBORETUM · HARVARD UNIVERSITY · CAMBRIDGE, MASS.

ARNOLD ARBORETUM · HARVARD UNIVERSITY · CAMBRIDGE, MASS.

ARNOLD ARBORETUM · HARVARD UNIVERSITY · CAMBRIDGE, MASS.

ARNOLD ARBORETUM · HARVARD UNIVERSITY · CAMBRIDGE, MASS.